Capture the Confidence of the Commodity Consumer

WE VISITED a large bakery in Chicago recently. The main output of this bakery is bread. Now bread is an essential commodity. Everybody consumes bread every day, and countless are the numbers of bread factories throughout the country.

We have set up these few obvious statements for the purpose of drawing a contrast between the bread industry, and the paper industry—for paper is also an essential commodity. The pound per capita consumption of paper is only slightly less than bread. Everybody consumes paper every day.

There are numberless mills and factories producing paper and converting paper throughout the length and breadth of the land.

So far, the analogy between the bread and paper industry is true. But from hence the contrast widens. This great baking company has plants in other large cities and produces millions of loaves of bread a day.

As we listened to the manager tell the story of the production, distribution and returns, we marveled, as one viewing a miracle. It wasn't a miracle as the manager put it—merely adherence to certain fundamental principles of supply and demand, and scientific merchandising, which seemed so positively simple and natural to the bread business, but absolutely foreign and inapplicable to the paper business.

The part which made our heart burn with envy was his tale of the profits.

Here he was—making a primary universally used essential commodity, with competition too numerous to count, and making a good profit from the breadmaking process.

We asked him this question: "How do you do it?" "Do what?" he inquired. "Make money from the production of such an essential commodity as bread?" "We don't make money from production of bread," he said snappily, and with decided emphasis on the word "production"; "our profit comes from the intelligent distribution and scientific merchandising of bread."

Then he continued—

"Anybody can make bread—every woman in the country used to make bread. But to make a loaf of bread that everybody wants—that's different. When consumers of a certain commodity insistently and persistently demand that you furnish them with a supply of that commodity each day, and when they will have no other, then comes to pass that desirable status in every industry—you own a profitable market.

"The basic factor in the situation is the confidence that the consumer has in the merit, value and service of your commodity, whether it be bread, sugar, flour, soap, paper or any other commodity. Let me illustrate. We have a recipe for making bread. Now a recipe is nothing other than a rule, a principle of operation. We know that certain ingredients put together, in certain proportions, under certain conditions, produce the best loaf of bread on earth. We never change that recipe. To change the recipe would be to change the result.

"So perhaps that is why in our business, whenever we wish to obtain a certain desired result, we look for the recipe or rule that can produce it, and when we find it we cling to it as tenaciously as a puppy does to a boot.

"Now we are not in the business for the bread's sake, nor are we in the business for the sake of the breadeater alone. Nothing so narrow in our makeup. Oh, yes! we like the bread business—but we are in and we like it and are satisfied with it because it is **profitable.**

"We always make a profit—a good profit. To make a good profit—THAT'S the result we are after. So we discovered and formulated the recipe for making a profit—and here it is in seven words: **'Capture the confidence of your commodity consumer.'** It's all there—the whole process: production, operation, distribution and sales. All in proper proportion, flavored with brains, ability and money.

"Follow that recipe, my dear boy," said he, turning to me, "and you will make handsome, continuous and glorious profits in the paper business."

REPUTATION

The dominant paper manufacturers use Appleton Felts and Jackets.

The reputation achieved by these products over a period of 34 years for quality, service and economy gives these manufacturers absolute assurance in specifying Appleton Felts and Jackets that they are securing the best made.

They are made from strong, virgin wool that is always sold at a premium.

The most skillful craftsmen in our industry then direct the production of this pure wool into the finished products which have made such an enviable reputation for enduring service among paper manufacturers—Appleton Felts and Jackets.

The excellence of these products is, in a large measure, due also to the priceless experience and knowledge obtained by our company in the long number of years it has served the paper manufacturers.

The reputation of our products in the trade is such that they have become "standard equipment" in many mills—and if you are not now using Appleton Felts and Jackets it is our suggestion that you investigate immediately "how" these products will help you speed production.

Appleton

Felts and Jackets

Appleton Woolen Mills

Appleton Wisconsin

EDITORIALS

A Problem Which Needs a Fair Solution

THE Canadian Pulp and Paper Association, at their recent meeting in Montreal, unanimously endorsed the idea of placing a tax on pulpwood coming from Canada into the United States. At the recent meetings of the American Paper and Pulp Association held in New York this was one of the important questions, and it was the unanimous opinion that every one connected with the industry in this country would be naturally opposed to such a tax on pulpwood coming from Canada.

The men connected with the industry in Canada, who are in favor of this tax, naturally feel that their side is the right one, and the men in this country connected with the industry, who are opposed to the tax, naturally think that their position is right. Senator Moses, of New Hampshire, in his address at the banquet in New York, stated that he was one of the Senate Committee on Foreign Relations and that this committee was now working out trade treaties with all of the different countries of the world, the first of which was being worked out with Germany, and that there would follow in close succession the same thing with all other countries in the world. It is only natural that this country is going to give preference to those countries from which we receive favors. We believe the time is past when one country can make an arbitrary rule in its dealings with other countries, for every country in the world depends on every other country, and this is as it should be.

We hope, however, that the wise heads of the industry in both Canada and the United States will get together on this subject and that some plan may be worked out which will serve best for both countries. The United States has always been in friendly relations with Canada and we want this to always continue. We believe this plan would be much better than to talk of retaliation in one way or another, for as Judge Wells said in his address at the banquet in New York, "it is necessary for two parties to get mad in order to have a fight, and nobody was ever benefited by having a fight." This applies to individuals and nations alike.

A Joint Meeting Next Year?

EVERYONE who attended the conventions in New York must have noted that the crowds were not nearly so large as has been the case for a number of years. This was no doubt due to the fact that the merchants did not have their meetings at the same time, and hence few of them were at the meetings.

We do not know what the opinion of most people is as to the advisability of the two branches of the industry meeting in conjunction, but it seems to us that the advisable thing to do would be for the manufacturers and the merchants to hold their meetings at the same time and at the same place. While a manufacturer going to New York naturally should be interested in the things that come up that are helpful in his industry, and he should attend the meetings and get all the benefit he can from them, at the same time, if he can rub elbows with some of his good friends, the merchants, the men who dispose of his product, he feels just a little bit better when he goes home, even though none of these merchants gave him any orders.

Orders are not usually handed out at meetings of this kind, but by coming in contact with people whom we do business with, in a social way, this is helpful, and we believe that the preferable thing to do is, and we hope it will be done next year, for the merchants to meet at the same time as the manufacturers.

There seemed to be a difference of opinion between the merchants and the manufacturers as to whether February or April would be the best time in the year, but it is our guess that the meetings will be held a little later next year than they were this and that the merchants will meet with the manufacturers.

Next year should be a tremendous time during these meetings, because we believe it is the understanding that the Paper Industries Exposition will have a big exhibit again as they did last year. We sincerely hope that it will be several times bigger, for with the manufacturers and merchants meeting together, and a Paper Industries Exposition, it means a big week in New York when the meetings take place.

Our Mite

THERE has been much said in praise of the successful completion of the five volumes of text books on the Manufacture of Pulp and Paper, and much of it appears in the pages of this issue. We should be amiss, we believe, if this opportune time should go by without our giving some meager expression to our feeling of pride that this industry has had the vision to see the need of such a work, the courage to undertake the task, the ability to perform it, and last but not least, the determination and push to put it over and establish the continuation of the work on a self-sustaining basis.

Nothing in the way of detail has been overlooked to make the set a perpetual authority. Anyone wanting to improve his knowledge and ability in the pulp and paper industry now has a set of books and available instruction, either class or correspondence, by which he can obtain it.

Sulphate of Alumina

Commercial *and* Iron Free Grades

"Quality Attained and *Maintained*"

MERRIMAC ALUM has been used for 40 years by the leading Paper Manufacturers of the United States and Canada. When buying your ALUM you will find no more dependable source of supply than the Merrimac Chemical Company.

Merrimac Chemical Company

Boston, Massachusetts

THE PAPER INDUSTRY

REG. U. S. PAT. OFF.

Vol. 6 FEBRUARY, 1925 No. 11

The Forty-eighth Annual Convention of the American Paper and Pulp Association

NORMAN W. WILSON, of the Hammermill Paper Company, Erie, Pa., was elected president of the American Paper and Pulp Association at the annual convention of that body and affiliated organizations in the Waldorf-Astoria Hotel, New York, on February 3, 4 and 5. He succeeds Henry W. Stokes, of the York Haven Paper Company, York Haven, Pa., who resigned after serving two terms of a year each in the presidency.

D. Clark Everest, of the Marathon Paper Mills, Rothschild, Wis., was elected vice president, succeeding Mr. Wilson, and Alexander G. Gilman, of the Allied Paper Mills, Kalamazoo, Wis., was re-elected vice president. The following were elected to compose the Executive Committee of the association:

F. J. Sensenbrenner, of the Kimberly-Clark Co., Neenah, Wis.; Hugh J. Chisholm, of the Oxford Paper Co., New York City; Herman Elsas, of the Continental Paper & Bag Mills Corp., New York City; Philip Weston, of the Byron Weston Co., Dalton, Mass., and W. L. Carter, of the Nashua Gummed and Coated Paper Co., Nashua, N. H.

The forty-eighth annual convention of the American Paper and Pulp Association was well attended. Perhaps no records of attendance were broken but certainly there were as many paper manufacturers, technical men, sales managers and other mill officials in New York this week for the yearly gathering of the paper clan as ever before. This was the first time in four years that the American Paper and Pulp Association met in annual convention without the National Paper Trade Association holding its annual confab at the same time. The former organization changed the date of its convention this year from April to February, whereas the merchants' association will not meet until April. It was feared, therefore, that this might result in the attendance at the manufacturers' convention falling off somewhat, but that was not the case. Association officials expressed much satisfaction with the large number of mill executives who journeyed from various parts of the country and Canada to be present at the annual convention this week.

At the annual meeting of the American Paper and Pulp Association on Thursday A. M., February 5, with President Henry W. Stokes presiding, the president dispensed with the usual president's annual address by referring to a printed statement on conditions in the industry which he had prepared, aided by the association officials and leaders in the industry, and which was distributed at the meeting. This statement follows:

President's Statement

Fundamental Conditions Sound—So much has been said and written the past six months as to the soundness of the fundamental factors influencing business that any lengthy discussion of these factors in a short statement on what seems to be ahead of the paper industry for the next few months would be out of place. Immediately following the general election of November, when the sane and sensible attitude of the great majority of the voters triumphed over what we feared might be a growing spirit of restlessness and radicalism, there was a great deal of real optimism as to the immediate future for business in this country. Everything seemed to be set for a decided upturn in business of all forms. This "Election Optimism" has cooled somewhat in view of seasonal retardants and because of the deep but nevertheless certain undercurrent of slowly changing economic and political conditions, particularly in the European countries.

Dependence Upon the Gold Standard—The interdependence of the nations of the world is well illustrated by the generally recognized fact that world commercial and business activities would not get back onto a sound basis until some of the strangling

political conditions in Europe could be changed for the better. Any attempt to interpret the effect of conditions in Europe upon the business of the United States and the world at large would be a waste of time without giving full consideration to the Dawes plan, and what its application is meaning in bringing the world back to a gold standard. It would seem as if the chief aim of the Dawes plan is to put Germany onto a stabilized gold basis and keep her there. As this cannot be done without harming to some extent other nations of Europe, which are not on a gold standard, it would seem as if the efforts of both the United States and England, or, rather, their combined efforts, are putting England back onto a gold basis and bringing the pound to par. Restoration of the gold basis in England is giving English manufacturers and merchants a depressing experience and probably rather serious losses, and yet such a return to a gold basis in Europe is apparently necessary to continued prosperity in the United States.

The Money Market the Index—We have gradually awakened to the fact in this country that gold piled up in vaults will not help us. Idle gold is as much an economic loss as idle land or idle men. One has but to turn to the financial sections of any of the New York dailies to learn of the tremendous outward movement of gold. All of this is, of course, affecting the money market, and it would seem as if the money market must be, for the next year, the index by which we are to gauge the trend of business, not only in the paper industry but in all of the industries, and in general business in the United States. The money rate has probably been too low and probably kept there deliberately. However, the money curve has now turned definitely upward and the curve will continue to rise. We may hope, from the Federal Reserve System, a control that will prevent a too rapid rise which might result in conditions that would harm rather than help stability.

Prospects for Spring and Early Summer—Some of the factors influencing the paper industry seemed on the surface to have been more favorable in February, 1924, than they are today. You know so well of what happened during the spring and summer months that there is no need of referring to the movement of business in those periods. There seems little question that the uncertainty of the people prior to the November election slowed business down, but the result of the election brought confidence, and there is every reason to believe that the factors which are influencing present trends are sounder today than they were a year ago. These factors, both direct and indirect, in their effects upon industry, seem to be affecting the situation in such a way as to promise good sound business ahead for the coming spring and early summer months. The very uncertainty of some of the conditions affecting the European situation is making some of our leading economists very hesitant to attempt to forecast what may come in the late summer months and the months beyond.

The Raw Material Situation—We are fortunate in being an industry, the product of which is fundamental to the satisfactory progress of the lives of every man, woman and child. From certain standpoints we are fortunate in being an industry using raw materials coming from a renewable natural resource. Though conditions must become more difficult in the raw material situation, and that because we are cutting our forests four times as fast as they are growing and making very little provision for renewal, yet when the lean years ahead are past and the forest lands of the country are brought back into continuous productivity, the paper industry will never have reason to worry as to the permanency of the raw material supply. This reference to the raw material situation, of course, covers the wood situation only and it assumes that as time passes more, rather than less, wood will be used in the industry.

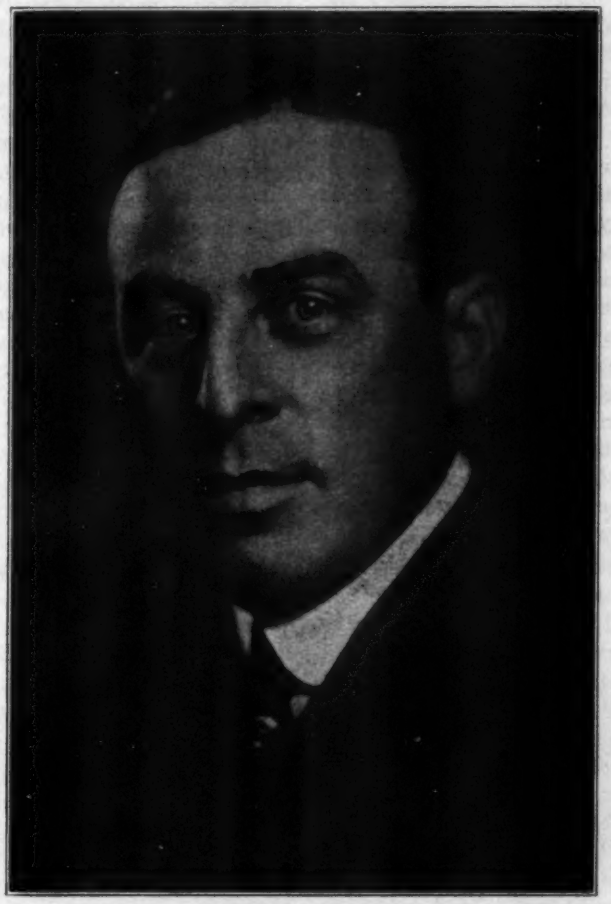
Capital Investment in the Industry—Careful estimates, based upon governmental reports, and upon data on file in the American Paper and Pulp Association, indicate that the capital invested in the pulp and paper industry in the United States in 1924 was approximately $1,200,000,000. The fact of the necessity for very large capital in relation to capacity of plants, and value of products, is not generally understood by the other industries of the country and certainly not generally by the financial agencies of the country. The paper industry owes it to itself to make this fact better understood.

Where the Industry Stands with Other Industries—In 1924 the paper industry produced over 7,000,000 tons of paper. A conservative estimate of the value of this tonnage, made in part from figures put out by the Bureau of the Census and the Department of Commerce, is $1,050,000,000. In the production of this great tonnage of paper there were employed approximately 125,000 men and women. Based upon figures which are often used by economists, if there are five dependents for each person employed in the paper industry, there were in fact 750,000 people dependent upon salaries and wages received from the paper industry.

The United States Bureau of the Census recently issued a statement indicating that paper and printing combined ranked sixth among the great industries of the country, the first being food and kindred products, the second textiles and their products, etc. The various directories of the industry indicate that there are approximately eleven hundred pulp and paper mills in the United States. A more accurate figure would probably be a thousand producing pulp and paper mills. These are scattered from Maine to California, many of them very much isolated, but

most of them are grouped together in regions of good water supply.

The Paper Industry and Fundamental Economic Movements—It is well for the industry to consider the figures which have been given above as indicating the extent and character of the important industry in which we are engaged. These figures are given not only as a matter of information, but to emphasize the fact that we belong with and are closely entwined in our activities with the other great industries of the country. These figures indicate too that we are of sufficient size, as an industry, to be a very essential part of American business life, and that the trends in the intry are influenced by the same factors influencing such great industries as food and textiles, iron and steel, lumber, etc. In other words, if it is important for the iron and steel industry and the textile industry to watch closely the fundamental movements influencing the political and economic life of the world, then it is equally necessary for the paper industry to be conversant with these movements, that their influence upon the various groups and the individual mills may be understood and considered in carrying on the daily business of the groups and the individual mills.



President Norman W. Wilson

Mr. Wilson is the youngest man ever to be chosen head of the American Paper and Pulp Association. He celebrated his fortieth birthday just last week. For the past year he served as vice president of the American Paper and Pulp Association, and has long been to the forefront in association activities.

Mr. Wilson started his career in the paper industry 22 years ago as an office boy with the Hammermill Paper Company, he having been recommended as a bright young lad to Ernst R. Behrend, now president and general manager of the company, by the Episcopal bishop of Erie. He worked in various capacities in his first years with the company, and through hard effort and earnest application of himself to business, ultimately became sales manager of the Hammermill Paper Company. Five or six years ago he was elected vice president of the company, in which capacity he is now connected with that organization.

The Pulpwood Situation—Reference has been made to the raw material situation and to the fact that the industry must adapt itself to a slow but steady increase in the cost of wood, and probably so in other raw materials entering into the production of paper and paper products. After all, the paper industry in large part goes back to the wood pile so that the problem is that of maintaining a reasonably large wood pile, made up of the right kind of wood. Freight is playing too large a part today in determining the value of wood. It is not at all an uncommon thing for the mills of the country to be bringing their pulpwood from points anywhere from 500 to 1,000 miles from the mill. As the Canadians have their own wood supply problem to solve it is probably not wise for the American mills to count too much upon the continued receipt of Canadian wood. The facts as to the wood supply situation must be looked squarely in the face if the problem is to be solved in a way to make for the permanency of the industry in this country.

Use of Hardwoods—One encouraging phase of the wood situation is the increasing use of hardwoods. Hardwoods may in fact help in large part to tide over the lean years between the end of our virgin forests and the time when forest lands will be under reasonable management, resulting in continuous production. We know that there are very large amounts of hardwood throughout the Eastern sections of the United States. Good would come, beyond a question, from research and demonstration in the use of hardwoods in the manufacture of various forms of paper. It would make a decidedly favorable impression upon the people of this country, and bring very valuable direct if not indirect results to the paper industry, if we could, as an industry, through the Association, actually own small areas of forest land in two or three of the principal paper-making sections for sensible demonstration of what may be done to insure permanency, not only of our forests but of our industry itself.

Pulpwood is now relatively plentiful, there having

been some carry over from 1923 and prospects of a good cut and easy handling conditions this winter.

Paper Stock—Paper stock is and probably always will be an important raw material to many of the mills of the country. The paper stock situation, for reasons with which most of you are familiar, has been the least stabilized and the least satisfactory of any other situation as affecting raw materials. You are all familiar with the curve which represents changing prices of paper stock. It is a curve which does not represent either careful thought or concerted action on the part of the industry. Granted, that it is not an easy situation to meet, yet there is no situation in the industry which, if faced squarely by the groups concerned, could not be bettered even though possibly not solved entirely to the satisfaction of those concerned. It is believed this situation might be improved by group control or buying. This suggestion will make some shake their heads. Even so, the paper stock situation is worthy of more aggressive thought and action than it has been given in the past. Prices are moderate to high, and with the prospect of good business during the coming months there is also a prospect of somewhat higher prices for all forms of raw material.

The Rag Situation—The rag market has been exceedingly interesting. It is probable that the rag situation is never affected by the same factors as those which affect the paper stock situation, and it is not well therefore to confuse the two forms of raw materials. During the second half of the past year, the cost of rags, especially new rags, continued steadily upward. At the opening of the present year new rags were more than 150% higher than they were before the war. For example, No. 1 white shirt cuttings were 6c before the war, and are now approximately 16c. This has resulted in a very logical and necessary advance in the price of rag papers. This advance has not been in any way comparable, however, to the great advance in the cost of rags, and is indicative of the conservative way in which the manufacturers of fine paper have maintained the stability of their industry in the face of an increasingly difficult raw material situation. It is believed that with the increase in the consumption of cotton goods, which has already started in this country, both new and old rags will be more plentiful and cheaper in price. Only by a lowering in the cost of raw materials and greater economy and efficiency in production will profitable operation of many of the fine paper mills be possible in 1925.

Domestic versus Foreign Clay—That no raw material used by the paper manufacturer will continue to be in an entirely satisfactory situation is evidenced by the efforts just initiated by the domestic producers of clay to bring about a 50% increase in the tariff on English China clay. While it is not at all probable that the domestic producers will be able to bring about such an increase in tariff on English clay under the flexible provision of the tariff law at least until possible general changes are made in the tariff law in the next long session of Congress, yet such an effort is very likely to result in increased prices of all clays, and therefore an increase in cost of producing paper.

The Pulp Market—While the situation as to pulps of various forms may not reflect directly the general wood situation, yet the gradual increase in the price of wood which we seem to be facing during the next few years, must, of course, affect the long range price of pulp of all kinds. The supply of bleached sulphite throughout the past year has been more than ample, largely because of the record breaking imports from foreign countries—including Canada, which is, of course, a foreign country. Imports of pulp have continued to increase from year to year and these imports have somehow been absorbed in our growing paper production. The position of the domestic pulp producer is a difficult one because of the constantly increasing importations of low cost foreign pulp. There are indications that the pulp market in this country is reaching saturation, and that the industry will be unable to continue to absorb increasing quantities of foreign pulps. The chemical pulp imports for the last five years show an increase of from 433,000 tons in 1919 to 1,250,000 tons in 1924. There is plenty of pulp in sight for the coming year, but prices today are firm and while there may be fluctuations during the year it may be safe to assume that the curve representing prices of pulp will rise gradually but steadily, though increasing competition may flatten, the curve for a time or even cause it to fall. The general direction would appear to be upward.

Excess Machine Capacity—The excess machine capacity in the mills of the country is a topic which should be given more than a paragraph in a short statement of this character. The paper machines of this country today have a potential capacity of 10,000,000 tons of paper per year, yet the estimated production of paper for 1924 of all grades is a little less than 7,250,000 tons. In the five year period ending 1924, 210 new paper making machines were installed with an estimated daily capacity of over 8,000 tons per day. What's the answer?

Conditions in the several groups of the paper industry are being discussed by prominent manufacturers at the 48th Annual Meeting of the American Paper and Pulp Association. Therefore, this statement will not be lengthened by commenting on the different grades of paper when it might repeat in part what you have heard from individual manufacturers taking part in the discussion just referred to.

The Newsprint Situation—Newsprint paper not being included in the discussion at the Annual Meeting will be referred to briefly. It would seem as if the newsprint industry of the United States is grad-

ually becoming Canadian, in that Canada is approaching, if it has not already reached the point, where it is now producing monthly more newsprint paper than is being produced in the United States. As the American market for newsprint and pulp is free to the Canadian mills it is probable that as long as this condition exists the Canadians will continue to absorb an increasing part of our market. The United States mills made 1,471,000 tons of newsprint in 1924, a decrease of 14,000 tons from 1923 and 40,000 tons from the high mark of 1920. Canadian newsprint production in 1924 was 1,353,000 tons, an increase of 80,000 tons over 1923 and 54 per cent. more than in 1920. For the first 11 months of 1924 we imported 1,121,000 tons of newsprint paper, almost entirely from Canada. It would seem as if the peak of consumption of newsprint had been reached, and one wonders how much longer we can continue to turn valuable softwood forests into pulp and then into newsprint, to be sold at prices that justify us in saying that we are giving our forests away for a song.

Production Without Profit—In general, production during the past year has been satisfactory. This does not mean that production has been continued at a reasonable profit. Capitalization of the producing plants of the industry are so great that production is often continued when it would be better for both producers and consumers if the production could be actually discontinued for a time. We are approaching the coming spring and early summer with confidence and in anticipation of good business. There seems to be no possibility of a boom, and no one wants a boom. We are approaching this period also with full knowledge that we must face in time increasing competition which will demand of the industry greater economy and efficiency in production and merchandising, if not combination and elimination of high cost plants.

Promise of good business should not close our eyes in any way to the factors discussed somewhat at the opening of this statement. We must be watchful at all times and keenly appreciative of the responsibility which is ours in carrying on an industry of the size and fundamental character of the paper industry. We must look beyond the immediate present to what may be ahead in the raw material situation; to what all are facing in ever keener competition with foreign countries, and through it all we must so act as to retain the confidence of the public, insure our permanency in this country, and get a fair return from what we are putting into the industry in the way of money, brains and energy.

Secretary-treasurer Dr. Hugh P. Baker, reported the association in a healthy condition, financially and otherwise. Dr. Baker's annual report appears on another page.

Photographs by Forest Products Laboratory, U. S. Forest Service

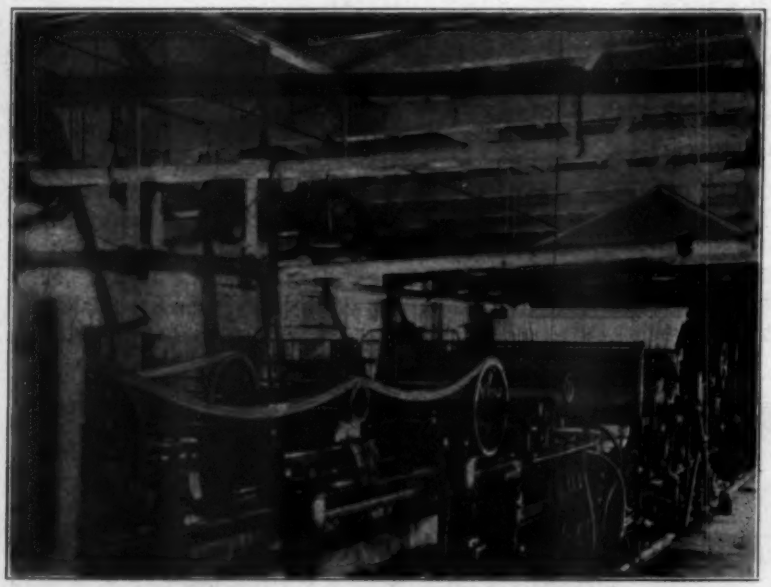
THE PHOTOGRAPH on the left shows pressed bark mixed with wood waste as it goes to the boilers of one paper mill after being put through a bark press of one of the newer types. In this machine chunks like those shown at the right and the smaller splinters, such as are usually lost in the water which runs from the barker drums and which form a source of stream pollution, are handled with ease along with the bark. Barker waste becomes useful as fuel when sufficient water can be removed to bring it down to a moisture content of from 50 to 55 per cent. Pressing out the moisture in excess of about 50 per cent of the dry weight of the bark changes it from a cumbersome waste which will not even burn without being mixed with coal to a low-grade fuel which can be used to replace some of the coal required by the mill boilers. The mill pressing the waste pictured here estimates that the press saves $75 of fuel costs per day by increasing the fuel value of the barker waste.

Property Protection

By I. R. McCALL
Detroit Graphite Co.

THE subject of property value and depreciation has heretofore been looked upon by owners and managers of large industrial plants as a necessary evil and the amount of money charged off each year has been arbitrary until it really became an automatic operation.

It has been the privilege of the writer to go through many of the large paper mills in this country and Canada, and it is surprising to note the very little thought which is being given the painting of many different types of surfaces that disintegrate and rot under the extreme conditions such mills present. The main idea seems to be production, which is, without question, the most important factor, but, one cannot help but wonder how long this production can be maintained if the property involved is not well cared for.



Wet end of machine showing Mill White finish

No figures are available at the present time showing the losses accruing to the paper industry, due to improper protection, disintegration, corrosion, etc., but it is interesting to learn that figures show losses in all industries in the United States, due to corrosion of steel and iron surfaces, to the extent of sixty-three millions of dollars.

Obviously a large proportion of this could have been saved by use of proper paint materials. Painting is usually considered purely from a decorative standpoint, no consideration being given the types of materials that should be used to give best protection, nor are the exposures under which the paint must work, given a great deal of thought. In fact, it has often been said that painting is a useless waste of money, still many complain that the structural steel, for instance, in their plants, corrodes so fast that it has to be replaced in a few years. Steel, under such conditions, unless properly maintained, will disintegrate faster than wood. By the use of proper paint materials, it can be made to endure indefinitely.

Paints are usually adaptable to various types of surfaces under ordinary conditions, but paper mill owners will insure the maximum amount of protection by the use of materials made to withstand the particular conditions the surfaces present. Specially formulated paints should be used in a sulphite plant. The pigments ordinarily used in paints will not stand up under such conditions. Heat, steam, condensation and water all call for formulas that have stood the test of time. There are many types of paints on the market today—some can be used in paper mills, while others are worthless under such exposures. For instance, white lead and oil cannot be used. Linseed oil will soften under moisture conditions and white lead will change chemically when exposed to the action of sulphur compounds. It is obvious, that the engineer or master mechanic, as well as the paint manufacturer, must know the chemistry of the gases, the action of the many other paint destroying agents and the causes of the large amount of destruction found in the plant, in order to intelligently buy, manufacture or recommend the right paint for the right place.

Metal Protection

To understand metal protection, a knowledge of the theories of corrosion is necessary:

There are three theories of corrosion: first, the Carbonic Acid theory; second, the Peroxide theory; and third, the Electrolytic theory.

While the first two theories are interesting, they have been discarded by scientists and chemists. Cushman and Gardner in their work on "Corrosion and Preservation of Iron and Steel" (McGraw and Hill, 1910), present these theories in a very interesting way.

At the present time, the Electrolytic theory of corrosion is accepted by scientists as being the true

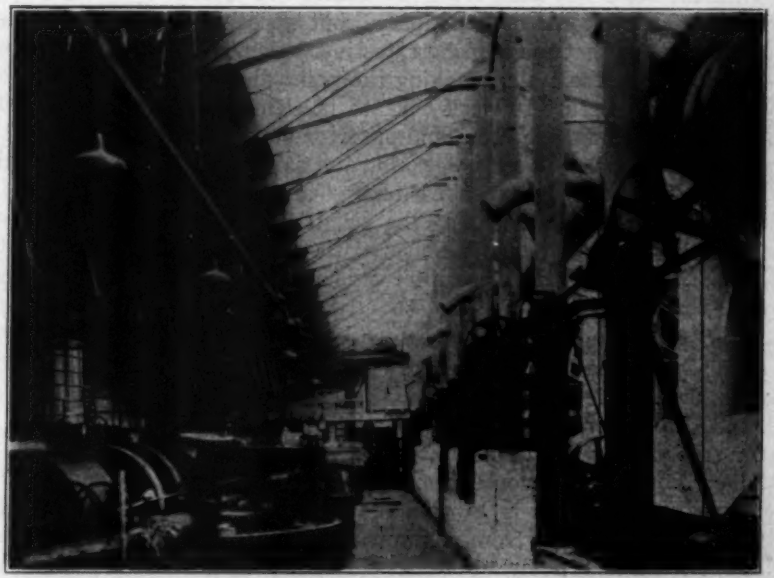
cause of corrosion. This, briefly stated, is as follows:

"Iron has a certain solution tension, even when the iron is chemically pure and the solution is pure water. The solution tension is modified by impurities or additional substances contained in the metal and in the solvent. The effect of the slightest segregation in the metal, or even unequal stresses and strains in the surface, will throw the surface out of equilibrium, and the solution tension will be greater at some points than others. The points or nodes of maximum solution pressure will be electro-positive to those of minimum pressure, and a current will flow, provided the surface points are in contact, through a conducting film. If the film is water, or is in any way moist, the higher its conductivity, the faster iron will pass into solution in the electro-positive areas, and the faster corrosion proceeds. Positive hydrogen ions migrate to the negative areas; negative hydroxyls to the positives. A hydrogen ion is a dissociated hydrogen atom carrying its equivalent static electrical charge. An acid is always highly dissociated in solution, while water itself is only slightly dissociated. This explains why the presence of an acid increases the concentration of the hydrogen ions. Ionization always takes place in every solution of an organic compound and even the purest water is slightly dissociated into its constituent ions. The more ionized a solution is, the higher its electrical conductivity and the more rapid the damage to the underlying iron.

"If the concentration of hydrogen ions is sufficiently high, which is the same as saying if the solution is sufficiently acid, the hydrogen ions will exchange their electrostatic charges with the iron atoms sweeping into solution, and gaseous hydrogen is seen escaping from the system. This takes place whenever iron is dissolved in an acid. If, however, as is usual in ordinary rusting, the acidity is not high enough to produce this result, the hydrogen ions will polarize to a great extent around the positive nodes without accomplishing a complete exchange, and the so-called electrical double layer of hemholtz will be formed. This polarization effect resists and slows down the action. Nevertheless, although it cannot be seen, some exchange takes place and the iron slowly pushes through. In other words, as fast as the iron sweeps into solution, the concentration of ferrous hydroxide grows, but the ferrous reaction appears in one place and the hydroxyl in another. It is now that the oxygen of the atmosphere dissolved in the solution takes up its work, the ferrous ions are oxidized to the insoluble ferric condition, which results in the precipitation of rust, and the action of hydrolysis proceeds. The formation of the insoluble ferrosoferric carbonates and hydroxides, changing to the red ferric hydroxide, known as rust, is familiar to everyone." (Cushman and Gardner, 1910.)

This reaction can easily be shown by the ferroxyl test which is given in the above mentioned work.

If the electrolytic theory is correct, the reason for so much corrosion in a paper mill is easily understood. The theory explains why so many paints will not hold up, for it is very apparent that in the protection of steel surfaces attention must be given the electro-insulating quality of the initial or priming coat. As a rule it is impossible to make a paint which has the necessary qualities to resist the electrolytic action and be weather resisting at the same time. Paint makers, therefore, recommend that the steel be first protected with a primer that is electro-insulating in quality and then one or two coats of paint which will protect the primer being used.



Machine and beater rooms showing Mill White half applied. This photograph is not retouched in any way

There are several types of materials on the market that are good primers; such as red lead, chromate compounds, etc., but in each case exhaustive tests have shown that the priming coat must be protected in order to properly maintain steel surfaces.

In many mills, paints of a bituminous nature have been used direct on the metallic surfaces. This is probably due to the fact that the material has been represented as acid-resisting and justly so. Most such paints are residual paints and contain free sulphur or sulphur compounds, which are active producers of corrosion. No doubt the reader has observed marked corrosive conditions after steel surfaces have been painted with asphalt or tar only a few months. These paints have their place in the protection of metal surfaces under extreme con-

ditions, such as complete submersion, or extreme acid-laden fumes, but in every case the metal should always be primed with an electro-insulating metal primer.

Considerable money is lost in the protection of metallic surfaces due to the improper preparation of the surface before painting. Too much attention cannot be given this phase of the work. All such surfaces should be dry and well cleaned before painting. The ordinary methods employed to clean these surfaces do not suffice. Corroded scale contains 24 per cent of hydroscopic moisture and the smallest particle left on the surface to be painted over is pust a foci to start rust action. If it were possible to incorporate an oil into the primer which would penetrate the scale and bond it to the underlying metal little difficulty would be experienced, but experience has taught us that the oil penetrates just far enough to help loosen the scale, breaking the paint film and permitting moisture to work beneath it. The practice of using machine room and other employees to clean these surfaces over a week-end and paint them, is as a rule, a very expensive one. The men are usually careless about getting the dirt entirely free from the surface, being satisfied with a job that looks fairly good and more interested in getting it over with.

During the past few years several tests have been conducted to ascertain the most effective method of cleaning corroded steel. Steel wire brushes, scrapers, hand chip hammers, all were found to be wanting, for after they were used a large amount of tightly adhered scale was removed from the surface by other means. Sand blast is by far the surest way to remove scale or rust from any surface, but the cost of operation and the flying of dust particles prohibits its use. The pneumatic hammer was found to be the most efficient instrument for this type of work.

Manufacturers of pneumatic tools make a small chiphammer for this purpore, which is very effective indeed. After using such a hammer steel wire brushes should be used to remove the surface rust.

Wall Coatings

A discussion relative to the respective merits of the various wall coatings on the market would avail little. The practice of using cold water paints is being discontinued, for while that material will give the desired light reflection it does not protect the underlying surfaces.

All walls and ceilings in a paper mill where labor is employed, such as machine rooms, beater rooms, grinding rooms, etc., should be coated with a white paint. Care should be taken in the selection of a coating, for there are very few materials on the market today that will stand up under the severe conditions these rooms present.

There is a belief on the part of many that bare structural steel in such rooms should be coated with an especially made steel protective paint rather than the same material used on the walls and ceilings. This is not necessarily true, provided the steel surfaces have been properly cleaned and given the necessary priming coat. Sufficient time should be allowed for the priming coat to dry hard before the application of the wall coatings over it.

If paper mill engineers would take the trouble to estimate by footcandlemeter the amount of light reflection in paper mills, they would note a considerable amount of absorption of light taking place due to the use of dark colors on structural steel.

Heretofore, white walls have been looked upon as a luxury, their real value being in the advertising such a place afforded. While a well painted plant certainly presents advertising value, the white walls alone will bring many dollars into the plant in ways other than advertising. Production is increased. Naturally the question might be raised as to how this can be done, when most of the machinery is automatic. If your employees have the maximum amount of light reflection in places where they most need it, is it not reasonable to expect that faster and better work can be done?

Certain industrial plants, other than paper mills, have kept records of plant production before and after painting, and the figures were rather startling. In some cases increases in production as high as 20 per cent were noted.

Light Bills

Light bills would be materially cut. Sunlight is without question by far a better lighting agent than any of the most wonderful lighting units made today. Why not reflect a little of it into the plant and make use of God's gift to man—it's free.

Accidents will be reduced to a minimum. It is human to be careless but men are not apt to put their hands in places where there is danger if they can see it ahead. Such insurance is surely invaluable.

White walls present a clean, healthful and cheerful environment for your employees, who spend at least one-third of their lifetime in these rooms. Satisfied employees seldom join the ranks of the I.W.W.'s.

The accompanying photographs illustrate very forcibly the value of white wall coatings in machine rooms.

Many things could be said relative to paints and their uses in paper mills, but lack of space prevents the writer from going into the subject further at this time. In another article being prepared the question of proper coatings for machinery, digesters, beaters, etc., will be discussed.

The National Paint & Varnish Makers Association of this country have during the past few years inaugurated a campaign to educate the public in the care and protection of their properties.

The slogan, "Save the surface and you save all," is indeed the modern "handwriting on the wall."

The Use of Decayed Wood in Bleached Sulphite Pulp

By JOHN D. RUE[1], R. N. MILLER[2] and C. J. HUMPHREY[3]

INVESTIGATIVE results published by the authors in the two previous papers[4-5] of this series have given considerable encouragement to the belief that much decayed wood that is now discarded can be used to advantage in news-grade sulphite. The experiments reported here were made with the purpose of determining the utility of wood affected with various kinds and degrees of decay for easy-bleaching and bleached sulphite pulps.

Wood Used

The wood used, spruce and balsam, was from the same lot as that employed in the previous newsprint grade experiments; the chips were in fact prepared at the same time. Table 1 records the various species of decay organisms with which the wood was infected, together with the extent of the infection expressed in terms of relative volume of wood which is visibly discolored. The specimens are listed in order of decreasing firmness of the wood.

Cooking Conditions

The cooks were all made as nearly alike as possible under carefully controlled conditions. The acid analysis showed 5.50 per cent total SO_2, 4.20 per cent free SO_2, and 1.30 per cent combined SO_2. All cooks were made at 75 pounds pressure and reached a maximum temperature of 148°C. in 8½ hours. The acid strength was thus 0.5 per cent higher and the pressure 5 pounds higher than the corresponding experimental conditions for news-grade sulphite. The temperature, while the same maximum was reached, averaged 3 to 4 degrees higher than in the case of news-grade sulphite.

The yields of pulp, both in terms of percentage by weight and in pounds of bone-dry pulp per 100 cubic feet of solid wood, are shown in Table 1. The increased thoroughness of cooking will, in general, be seen to have brought the yield below that obtained when cooking for news-grade.

Bleaching

Table 1 also records the bleach requirements of the various pulps. These are the respective amounts of 35 per cent bleach powder required to bring the color up to that obtained when pulp from sound balsam, cooked by the same process as the decayed wood, was treated with 15 per cent of bleach powder. All the pulps were bleached at 5 per cent density and at 105°F.

Results of the Tests

From the values in Table 1 it is apparent that the yields from 100 cubic feet of wood infected with Polystictus abietinus Stereum sanguinolentum (grade 3 hemlock heart rot), and Fomes pinicola are all materially reduced by the action of the organisms. In commercial practice they would be lower still, for the reason that in mill practice much of the more friable parts of the logs would be lost in wood room operations, whereas the yields obtained in this series of experiments were from the entire log. In other words, wood of the character represented by the three lots mentioned would be of doubtful utility in commercial operations.

TABLE 1

Yields of Sulphite Pulp from Inspected Woods and Bleach Requirements.

Fungus producing the rot	Volume of infected wood	Weight per cubic ft. of oven-dry wood	Yield oven-dry screened pulp	Yield oven-dry screened pulp per 100 cu. ft. of wood	35% Bleach powd. required, oven-dry pulp basis.
	Per cent	Pounds	Per cent	Pounds	Per cent
BALSAM Uninfected	None	29.8	49.5	1,030	15
Stereum sanguinolentum[1] Grade 1	55	21.0	47.2	991	19
Stereum sanguinolentum[1] Grade 2	74	21.0	50.5	1,061	20
Mixed feather rots	31	21.0	46.3	972	17
Polystictus abietinus	66	17.8	47.3	842	15
Stereum sanguinolentum[1] Grade 3	100	16.6	45.8	760	20
Fomes pinicola	69	18.0	39.2	706	18
SPRUCE Trametes pini	90	23.3	49.5	1,104	20

[1]Formerly called Hemlock heart rot.

[1] In charge Section of Pulp and Paper, Forest Products Laboratory, U. S. Department of Agriculture, Forest Service, Madison, Wis.

[2] Chemist in Forest Products, Forest Products Laboratory, U. S. Department of Agriculture, Forest Service, Madison, Wis.

[3] Pathologist, office of Forest Pathologist, Bureau of Industry, Madison, Wis.

[4] The Paper Industry, May, 1924, Pulp & Paper Magazine of Canada, Jan. 24, 1924.

[5] Paper Trade Journal, May 15, 1924.

The yields from the other specimens are large enough to make it appear quite probable that wood of the character represented might be used with profit if no consideration other than yield entered in.

In all the work with the specimens of wood included in this study, the unbleached pulp has exhibited a darker color than pulp from sound wood, to an extent roughly paralleling the degree of darkening of the wood by the action of the organisms, and the effect is reflected generally in bleach requirements. Pulps from woods discolored in varying degrees require corresponding increases in the amount of bleach to produce a white comparable to that obtained from sound wood. The pulp from only one specimen (Polystictus abietinus) could be bleached as easily as that from sound wood.

TABLE 2

Strength of Pulps Before and After Bleaching

Numbers at top of columns refer to minutes beating in the ball mill.

Fungus producing the rot		Bursting Strength-Mullen tester				Breaking Length			
		Points per lb. per ream				100s of meters			
		20	40	50	80	20	40	60	80
BALSAM uninfected	Natural	0.83	1.00	1.07	0.97	30	44	46	37
	Bleached	0.84	0.99	0.98	0.93	28	34	37	32
Stereum sanguinolentum[1] Grade 1	Natural	0.81	0.92	0.95	0.95	38	41	37	37
	Bleached	0.69	0.89	0.87	0.83	27	33	31	29
Stereum sanguinolentum[1] Grade 2	Natural	0.81	0.90	1.04	1.04	41	43	41	36
	Bleached	0.74	0.88	0.87	0.88	29	32	37	30
Mixed feather rots	Natural	0.80	0.99	1.03	1.02	43	42	43	39
	Bleached	0.85	1.00	0.97	0.95	34	40	35	46
Polystictus abietinus	Natural	0.80	0.98	1.03	0.99	42	47	42	36
	Bleached	0.77	0.94	0.89	0.96	38	39	38	37
Stereum sanguinolentum[1] Grade 3	Natural	0.79	0.95	0.94	0.82	40	38	33	31
	Bleached	0.72	0.79	0.73	0.62	32	43	30	26
Fomes pinicola	Natural	0.90	0.86	0.64	0.59	38	34	29	23
	Bleached	0.77	0.62	0.52	0.47	35	29	27	25
SPRUCE Trametes pini	Natural	0.64	0.67	0.68	0.59	26	26	23	24
	Bleached	0.59	0.61	0.46	0.42	21	20	27	23

[1]Formerly called Hemlock heart rot.

The strength of the pulps, both bleached and unbleached, shows interesting differences in the effects produced by different organisms (see Table 2). The loss in strength on bleaching is not great in the case of the sound wood, the wood infected with Stereum sanguinolentum (grade 1), mixed feather rots, and Polystictus abictinus. The other samples show a considerable loss of strength. In fact, the bleached pulp from wood infected with Stereum sanguinolentum, grade 3, would be regarded as of distinctly poor quality commercially, while that from wood infected with Fomes pinicola and Trametes pini would obtain little or no commercial consideration.

From the foregoing it may be concluded that, while some infected wood can be cooked and bleached to a commercial pulp with good yield and strength, the bleach requirement will be high in rough proportion to the depth of discoloration in the wood.

It is also true that some grades of infected wood, from which a fair yield of usable pulp may be obtained when cooked for news-grade sulphite, yield pulp in much smaller quantity and of doubtful commercial value when manufactured into bleached sulphite. It is hoped that in cases of uncertainty the recorded and tabulated data of this series will afford at least a suggestion for procedure.

What Does Your Groundwood Cost?

By ADOLPH F. MEYER
Consulting Engineering

IN THE final analysis the cost of groundwood represents the total expenditure necessary to bring a given quantity and quality of groundwood fiber to the machine where it is to be utilized in the finished product.

By means of the best present methods of sampling and testing both lapped and slush groundwood for moisture, checked against the total furnish, white-water waste, and bone-dry output, the **quantity** of fiber used can be determined with substantial accuracy. The **quality** of fiber used, however, is normally known only between wide limits.

Coal is almost universally purchased on a B. T. U. basis. Similarly the cost of groundwood should bear a closer relation to the quality of the fiber supplied, as measured by the use to which it is to be put, than it now does. To that end suitable measures of quality of groundwood fiber should be established. This, however, is not altogether a simple matter.

Perhaps the most generally applicable and useful measure of quality of groundwood fiber is "freeness." During recent years most progressive mills have installed some type of freeness testing outfit. Unfortunately, however, each outfit has its own individual scale of freeness. These scales should be compared and a standard adopted so that we may all "talk the same language." The Forest Products Laboratory can perform another useful service to the paper industry by making tests on all suitable Freeness Testing Outfits and suggesting a standard scale for all manufacturers of such outfits to follow. Tables of comparative values of a given freeness determined with the several outfits now in common use could be issued to present users of such equipment.

Another measure of groundwood quality is the appearance of the fiber as judged by the individual examining it on the blue glass, under the microscope, or projected on the screen as highly diluted pulp is made to circulate between glass plates in the camera. The value of such examinations would be enhanced if one could compare the sample of groundwood in hand with a series of photomicrographs of typical groundwood fibers furnished as standards by the Forest Products Laboratory.

As first steps in the determination of groundwood costs, then, we must have records of both quantity and quality of product determined by suitable uniform standards of measurement.

Pointers for the Engineer

By W. F. SCHAPHORST, M. E.

Air Preheating

AIR PREHEATING is being more and more favorably regarded by power plant engineers. I have touched on this subject a number of times in THE PAPER INDUSTRY and pointed out that paper mills were among the first to make actual use of air preheaters. Instead of leading, central power plants have therefore been "following."

The advantages of air preheaters have been known for nearly a half century. In fact exhaustive tests were made on air preheaters more than 40 years ago, and preheaters have been used to a considerable extent in European countries.

The principal advantage of air preheating is the reduction of chimney heat losses. It is not logical to allow hot gases to escape out of the chimney and at the same time use cold air in the furnace which must be brought to the temperature of combustion before it is of any value in the combustion process. Why not use the hot chimney gases for preheating the air? That is what is done, or what should be done.

In addition, it is being found that there are other advantages, such as (1) a lower grade of fuel can sometimes be burned; (2) heat transfer is better; (3) greater advantage may be taken of radiant heat; (4) combustion is more thorough—the carbon content of the ash being less; and (5) with the higher steam pressures, the higher must be the temperature of the gases leaving the boiler, consequently the greater is the advantage of preheating.

Disadvantages are: the first cost; the cost of maintenance; the cost of space; the hardship on grates and furnaces; and the tendency of certain grades of coal to clinker.

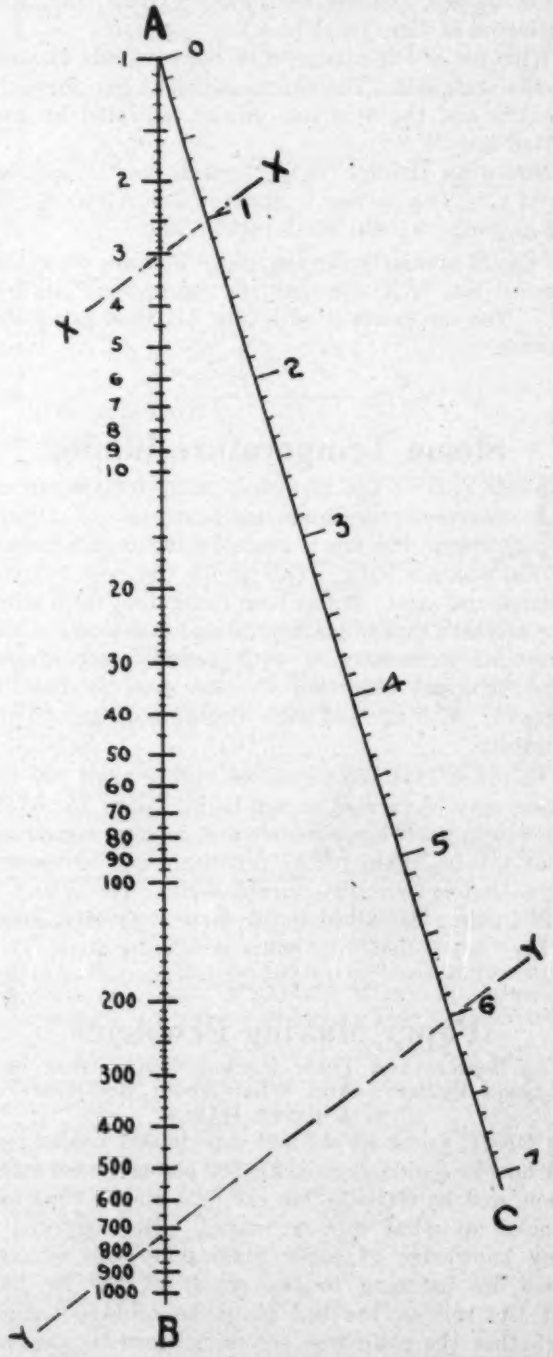
Air preheating is better adapted to combustion with pulverized fuel than with coal because there is no intervening grate or stoker.

It has been demonstrated that the capacity of a given boiler may be increased as much as 15 per cent by preheating the air.

How to Extract Any Root of Any Number

MANY complicated methods have been published showing how to extract the square root, cube root, fourth root, fifth root, etc., mathematically.

Here is a chart that will quickly extract any root of any number with equal ease. One root is no more difficult or time-consuming than the other. It will even extract a fractional root such as the 3½ root, 5.75 root, etc., which many capable mathematicians would have difficulty in solving by "longhand."



This chart may be used as it stands, or, if you prefer to make your own, lay off a logarithmic line

A B as long as you wish—up into the millions if desired.

Then lay an ordinary scale along side of it like A C, so that "zero" in the scale coincides with the "one" in the logarithmic line just as shown here. A C may be placed at any convenient angle with AB.

That's all there is to it—the instrument is now ready for use.

Let us now try the device and extract, say, the sixth root of 729.

With the eye the position of 729 is closely located on the scale AB. Then run a straight line through the 729 and the 6 in line AC as indicated by the dotted line "Y."

Now draw the line "XX" through the "1" parallel to "YY." The answer is given in line AB as 3. In other words, 3 is the sixth root of 729.

Proceed similarly for any root. Always draw the parallel line "XX" through the figure "one" in line AC. The intersection with line AB then gives the answer.

Steam Temperature Limits

BECAUSE of the fact that many metals cannot withstand the high temperatures of superheated steam, the present safe limit for such steam is 750 degrees Fahr. This is for the best modern commercial steel. It has been recognized for a number of years that brass, bronze and cast iron are not practical in connection with superheating steam. The principal objection to cast iron is that it "grows," with age and with constant change of temperature.

In order that temperatures higher than 750 degrees may be carried, it will be necessary for scientists to improve upon metals and develop something that will be commercially practical—not too expensive—strong enough—durable—etc. No doubt it will in time be solved in the same way that many other "impossible" things are now being done.

Paper Making Problems

The Beaters and Their Ins and Outs—What Is a Good Beater?—And What About Bed-plates?

By A PAPER MAKER

I ONCE asked an old and experienced beater man how he could tell when his bed plates needed attention, and he replied, "Me ear tells me, and me foot backs up what me ear says." He conveyed to my knowledge of paper making by this remark, that by listening to the sound of the fly bars of the roll on the bed plate, he could determine whether the plate was becoming worn too smooth, and by resting his foot on the bed plate holder, he could tell by the feel of the fly bars on the plate whether it was too smooth. Thus, experience teaches the operator of beaters how to determine these things, but the up-to-date papermaker desires some method a little more reliable, and not dependent upon any one man's ear or foot. So now, records are carefully kept and periodical examinations made, when exact measurements are taken, in order to determine the wear on bed plates and beater rolls. And without such methods, no mill can hope to produce papers of uniformity, for the old paper making remark that, "Paper is made in the beaters," still holds true, and if the beating equipment of a mill is not properly cared for, variations in product are bound to be present.

Even with the most careful supervision, it is difficult to apply the same beating methods to the same formula or furnish made at different periods. Supposing today a mill produces a certain grade of paper and all the qualities of the sheet meet requirements. Six months pass by when an order for this same paper comes along, and the superintendent carefully writes out exactly the same furnish as was used on the first make and proceeds to make the paper. The beater man may or may not recall just how he treated the stock on that particular grade, but every paper maker knows that after six months operation of those beaters, the beating equipment cannot be in the same condition as it was on the previous make of that paper, so he must rely on the beater man to beat the stock so as to get as near the same result as possible, and under such conditions we realize the importance of a good beater man, at the same time appreciating the difficulties in making paper twice alike in all ways.

A good beater is one that has a good circulation of stock that will throw the stock on its outer edges in towards the center. One whose every roll bar is doing its share of the work, and will circulate stock of the maximum density, for no paper maker will dispute the fact that best results are secured when the beaters are heavily charged with stock.

Inspection of beater rolls and bedplates should be a weekly event, especially in mills where rag papers are being made and where the work is hard on the beater equipment.

When beater roll bars wear down to a point where circulation is retarded, it is economical to have the roll refilled, for power costs and variations in quality of product quickly eat up any saving that might be possible through extending the life of the bars.

The co-operation of good beater engineers and master mechanics in paper mills is very desirable, in connection with getting the best results from the beaters. These two should be good friends and talk over frequently the conditions of the equipment and keep it up to top notch efficiency.

See that all parts are fastened tight and guards are in place before starting your machine, says the National Safety Council.

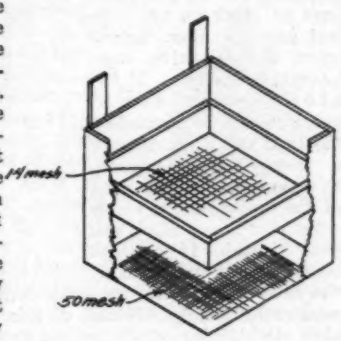
Practical Helps for the Mill Man

Carrier for Suction Boxes

TIME and trouble has been saved in installing and removing suction boxes by attaching a carrier on the end of the box. A small I-beam is attached to the frame of the machine extending across the machine directly under the box. The carrier, provided with roller bearings and fitted on the end of the box runs along the I-beam track in taking out or putting in the box.

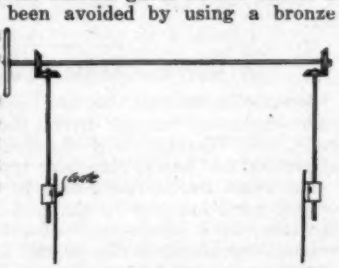
Screen for Bleach Liquor

TO ASSURE a clean bleached pulp, it is often necessary to screen the bleach liquor while filling the bleacher. When a fine wire is used, however, the force of the liquor is apt to tear away the wire. In using the screen shown in the sketch, the liquor is first run through a 14-mesh wire attached to a removable frame which breaks the fall of the liquor and removes any large particles. The liquor drops from the coarse screen onto a 50-mesh wire which takes out any remaining dirt. The screens are fastened to an ordinary box frame about two feet square with handles attached. The coarse screen frame fits loosely into the other so that it may be easily lifted out by the handles for cleaning.



Gate for Cylinder Machine Vat

TROUBLE in adjusting the suction gates on the vat of a cylinder machine has been avoided by using a bronze screw attached to the brass gate as shown. The bronze will not rust, will keep clean and work freely so that quick and accurate adjustments may be easily made. An old bearing box was attached to the gate to take the bronze screw.



Detecting Chlorine Fumes

WHERE the open tank absorption system is used for making up bleach liquor from liquid chlorine, any very slight amount of chlorine escaping from the tank may be quickly detected by a bottle of ammonia hung over the tank. This will start to fume before the odor of the chlorine can be noticed.

Speed Increased

IN MAKING light weight papers, it has helped in at least one instance to partly fill the space between the slices as shown by covering the ends. By thus increasing the velocity of the stock flowing onto the wire, it was possible to increase the speed of the machine and still maintain good formation.

Packing for Acid Valve Discs

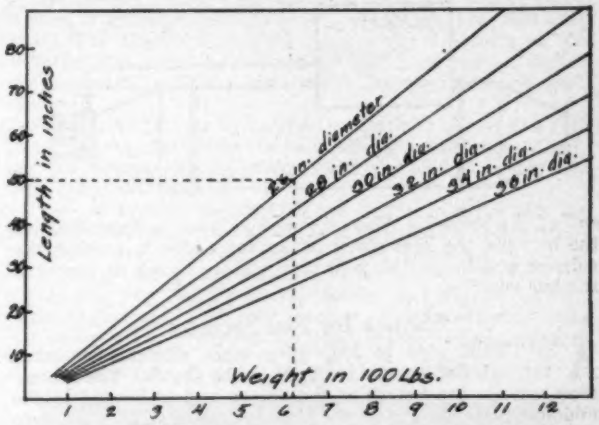
AN EFFECTIVE covering for sulphite acid value discs can be made from heavy jacket felt. It is said that this stands up very well against the acid and gives a tight joint that will last.

Measuring Out Bleach Liquor

ONE important factor in bleaching is the proper measuring of the bleach liquor. To insure a definite amount of liquor going to the system, the simple device shown in the sketch was used. A measuring rod was attached to a bottle float held in place by four guide rods. An arm attached to the measuring rod trips out the switch on the pump motor, stopping the pump when the proper amount has been taken out of the tank.

Chart for Figuring Average Weight of Newsprint Rolls

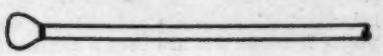
THE chart shown for figuring the average weight of newsprint rolls may be found convenient in taking an inventory of rolls on the floor. The basis for the chart is taken from



the average weight of newsprint of 32-pound basis weight. A roll 1 inch long and 1 inch in diameter weighs 0.01843 pounds. Knowing the length and diameter the weight of the roll may be read from the chart.

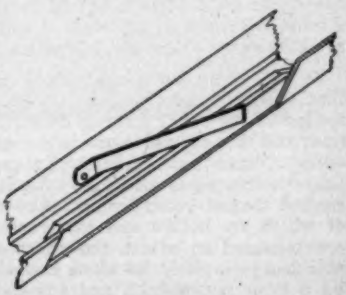
Plunger Used for Filling Straw Rotaries

THE plunger shown in the sketch has helped materially in filling straw rotaries. The plunger is operated up and down by a steam cylinder which exhausts into the rotary while filling. The loose straw is packed in by the plunger and the exhaust steam soaks and settles it and warms it before the cooking is started. The capacity of rotaries filled in this manner has been increased by two tons and the number of fillings during the cooking process has been reduced from 5 to 2.



Shear for Conveyors Where Chain Carries Attachments

IT IS sometimes desirable to shear off blocks of wood from a conveyor where it is necessary to have attachments on the chain to carry the wood along. This has been accomplished by using a shear of ½ inch flat iron 6 inches wide, in the manner shown. The shear rests on a support running along between the two chains which lifts the shear just high enough for the chain attachments to pass under it. The shear is set very slanting so there will be small chance of the wood being caught and blocking the chain. In the particular instance where this was used, there were eight similar transfer points in the wood room and the use of the shear in this manner has eliminated a man at each point.

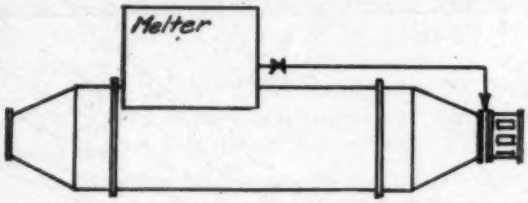


Gooseneck Guard to Keep Chains on Sprockets

AT THE end of a wood conveyor having more than one chain, there is a possibility of the chains being forced to one side and run off the sprockets by small blocks of wood being carried over between them, forcing the chains from the sprockets. This trouble is eliminated by attaching a gooseneck guard as shown. With the guard attached, it is impossible for any wood to be caught, neither can the chains be forced to one side and off the sprockets.

Melted Sulphur Run in Back End of Burner

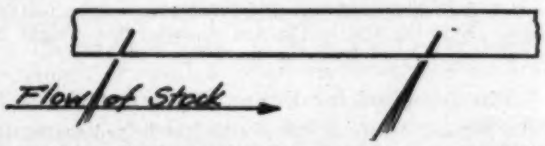
IN ONE instance, a steam jacket was made unnecessary on the sulphur feed pipe by running the sulphur in the back



end of the burner. When the melting tank is located above the burners, the heat given off by them aids in melting the sulphur and keeps the feed pipe warm enough to keep the sulphur running.

Shower for Flat Screens

A SHOWER pipe to help give more efficient screening through flat screens is shown in the sketch. The shower pipe extends the length of the screen and is located in the middle. Slots are cut in the pipe at a distance of about two



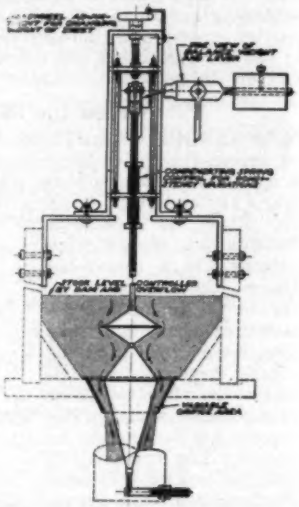
feet apart, as shown, to give a fan shaped stream. The slots are slanted to direct the stream against the flow of the stock down the screen. The shower retards the flow slightly and helps keep the screen plates clean. Where the screening capacity is small this has been a considerable help.

An Automatic Stock Regulator

To provide a stock regulator which is automatic in action, one which will dispense with the necessity of manual adjustment for every change of consistency, and one which will eliminate the constant watching and attendance upon the paper machine, has been the object of Louis Boivin, a practical and well known paper maker, who has invented a machine known as the Boivin Stock Regulator, for controlling the weight of paper on paper machines. The device is being successfully operated in a number of Canadian paper mills, having been on the market in the Dominion for some time. Exclusive American rights for manufacturing this machine are held by the Glens Falls Machine Works, Glens Falls, N. Y.

By referring to the accompanying figure, it will be noted that the stock level or head in compartment shown is controlled in the usual manner by an adjustable dam and overflow, and this compartment is provided with a conical shaped outlet of brass, smooth finished, through which the stock must pass to the paper machine. Suspended in this outlet is a conical shaped gate, and attached to it, above, a float, both of which are hollow and constructed of sheet copper. Both are mounted on a rod, the upper end passing through and attached to a yoke, the whole assembly being counterbalanced by a lever and weight, and adjustable upward or downward by a handwheel and screw, through which the position of the conical gate is determined. The rod is loosely supported in the yoke by sensitive compensating compression springs, one above and one below the yoke, tension being controlled by lock nuts, and this permits a further limited, upward or downward movement of rod, float and cone. The lower end of rod is supported to prevent side sway.

Thus it will be noted that the volume of stock passing through the outlet is controlled by the conical gate, the raising of which increases the orifice area, allowing a larger volume to pass through, and the lowering of which reduces the orifice area, decreasing the volume.



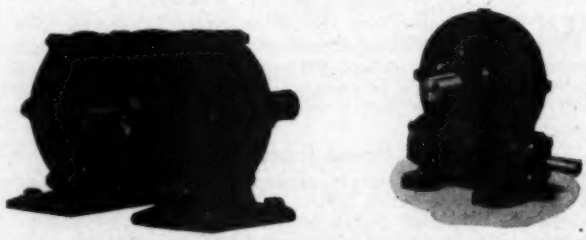
The conical gate is first adjusted to the required volume of stock which, together with weight of sheet, will remain constant so long as consistency remains uniform. Any changes in consistency are instantly felt and compensated for by the pressure of stock on the conical gate and float, acting upon the sensitive compensating springs. If the stock becomes heavier, pressure will be exerted on the float and cone, causing a downward movement, thus restricting the area of the outlet, and a lesser volume of heavy stock will pass through. If the stock becomes thin, its action on the float will slightly raise the cone, increasing the area and permitting a larger volume of thinner stock to pass through, thus maintaining at all times a uniform weight of sheet.

The apparatus is manufactured in various sizes to suit the tonnage of the particular machine on which it is to be installed. It is of simple design, constructed entirely of brass or copper, and can be readily attached to the regular stuff box.

A Vertical-Angle Planetary Reducer

Because of the fact that the paper industry requires many right angle and vertical drives, the William Ganschow Company, 1015 Washington Blvd., Chicago, has completed a line of vertical and angle, planetary type speed transformers.

The angle transformers may be used to drive either right or left hand and can be changed around from one hand to the other by a competent mechanic in a few minutes. The vertical transformers can be had to drive either up or down according to conditions.



Ganschow speed transformers are standard in every way and are made in sizes from 1 to 150 H. P., and with reduction ratios of 4-1 to 250-1, thereby covering every possible application for speed transformer units with a standard transformer of tested design.

The direct drive may be applied in machinery with horizontal drive shafts and is connected concentric with the drive shaft by means of a flexible coupling. This type is popular for conveyor drives, grinders, crushers, and all sorts of process machinery.

The angle drive is arranged so that the motor may be placed at right angles to the driven shaft of the machine. Where space is a factor, this type of drive very often may be used where there is not sufficient room for a direct con-

nected unit. It is also particularly applicable to a line shaft drive, as it may be arranged for two driven shafts at the same or different speeds, the motor being at right angles with both driven shafts.

The vertical drive may be used to drive any machinery with vertical shafts, such as mixers, feeders, agitators, or centrifugals. It is easily applied and has the advantage of

allowing the motor to be placed at sufficient distance from the speed transformer to escape the effects of steam, acid gas, or abrasive dust, which may arise from the process.

The conditions which the handling of pulp and paper in its raw or in its finished state imposes upon speed reduction equipment are very severe, not only because of shock loads, but also because of the exceedingly heavy loads which are harmful to belting, chain, open gearing, or other types of power transmission. Because of their reputed ability to function properly under adverse conditions, the Ganschow speed transformers are particularly adaptable to the pulp and paper industry. All types of these planetary transformers are entirely enclosed and self-contained, making them impervious to dirt, moisture, acids, etc., and consequently they require little or no attention except occasional lubrication, and maintenance costs are negligible.

An Improvement in Screen Plates

Much interest is being shown in the improved design of screen plates which are manufactured by the Fitchburg Screen Plate Co., of Fitchburg, Mass. These plates are their own design and have been patented in the United States and Canada. While the improvements which have been made seem very simple, they are very far-reaching in the performance of the screen plates. By an entirely different method of machining the plates, they are able, with exactly the same number of slots per plate, to increase the screening capacity of the plate about 25%. This, of course, means greater possible production and cleaner screening, because the plates do not have to work so hard to get the stock through. There is another feature to these new type plates in that they do not tend to plug-up and form strings nearly so much as the old style of plate. This is also the result of the improved design. These plates are now in use in a very great number of mills on every grade of paper, board and pulp, and they seem to work equally as well on all these grades.

1925 Chemical Exposition Will Admit Public

The management of the Tenth Exposition of Chemical Industries which will be held at the Grand Central Palace, New York City, during the week of September 28, 1925, has decided to admit the general public, by exhibitors' tickets as in former years, summarizing their decision with the statement that "Inbreeding is fatal to industry as well as to individuals."

Citing many examples of benefit which the American chemical industry has received through public participation and through creating public confidence, the statement of the management showed especially how the attitude of financiers and banks toward the young chemical industry in this country eight or nine years ago was changed by the public reaction to the first and second Chemical Expositions held in 1915 and 1916.

Chemical Equipment Mfrs. to Hold Exposition

The Association of Chemical Equipment Manufacturers announces that with the endorsement of the American Institute of Chemical Engineers, and assured success, a first Chemical Equipment Exposition will be held in Providence, R. I., June 22 to 27, inclusive.

Public admission will be barred at the exposition, so that technical men, general executives, purchasing executives, superintendents, laboratory and operating men, owners, etc., etc., of industrial enterprises may have entirely unhampered opportunities to study the relation of chemical processes to their respective problems.

The headquarters of the Chemical Equipment Manufacturers are at 1328 Broadway, New York City. The Providence-Biltmore Hotel, the headquarters for the exposition week, and the Narragansett, Dreyfus and Crown hotels in Providence are making reservations now for those who plan to inspect the exposition.

A Self Aligning Belt Fastener

The Bourne Fuller Co., Upson Works, Unionville, Conn., makers of standard belt fasteners, announce a new belt fastener. The Standard Self Aligning which embodies all the old principles which have made the split rivet type of fastening successful, and new ideas which greatly increase its efficiency.

The middle nibs or lips align the fastener across the belt, their "V" shape allowing the belt ends to come together, making the belt practically endless, and the load is evenly and widely distributed.

The end nibs or teeth which are driven into the belt are made for two purposes; one to hold the plate in place while the rivets are driven and clinched, and the other to relieve the rivets of the strain; hence only one half of the usual rivets are required, making the belt quicker to fasten or take up.

The projections in the rivet guide the rivet lengthwise of the belt, thereby displacing less material, preserving the strength

of the belt and preventing the belt from breaking at the back of the fastening. The embossing around the rivet hole makes it easy to remove rivets.

The plates are bent to the periphery of the pulley, and the fasteners are applied to the belt in small units allowing the belt to conform to crown pulleys and cross belts.

The Standard Self Aligning Fastener will fasten leather, rubber or woven belts and can be used over again. The only tools necessary are, a hammer, to fasten and a rivet extractor to remove rivets.

Editorial Comment

By WILLIAM SIBLEY

One Reason for Our Multiplicity of Laws

FOR a great many years thoughtful citizens have recognized the demoralizing effect of hasty legislation on the Constitution of the United States. Fear, in this regard, was expressed by Abraham Lincoln. Even John Marshall warned us against "the hasty passage of unsound statutes."

That there is a definite plan for the complete destruction of that document, a plan backed by a large and powerful organization, too few of us realize. There is such a plan. It has existed in traceable form for over 35 years. The first visible action by it started in California, about 26 years ago, with agitation for the Initiative, Referendum and Recall. And while we have no intention to here argue the merits of these measures (admitting there are two sides to the question)—whatever may be speciously said in favor of the Initiative, Referendum and Recall, it is undeniable that they are at vital variance with the Constitution. The second blow at the Constitution was struck in 1913 when the election of United States Senators was delegated to the direct action of the open primaries. Certain Senators are now proposing the abolition of the Electoral College, which would throw the election of the President and Vice-President into the open primaries. This is the third blow at the Constitution. The systematic attacks now being made against the Supreme Court constitutes the fourth blow.

Only recently there has been issued from the Inner Circle at Moscow a reiteration of one of the "22 points" demanded of the Communist Party of America. The repeated demand is: "Hector and harass the Government. Bombard your representatives with applications and appeals. Bring about all possible kinds of legislation. Create confusion by passing such a multiplicity of laws as to render sane execution of them an impossibility."

Have we all unconsciously obeyed those demands? Federal, State and municipal laws and ordinances now total in excess of two million. To successfully perform his duty a policeman in New York City should have knowledge of over 16,000 laws. State legislatures and Congress grind out more than 2,000 new laws every year, and nearly twenty thousand more are annually enacted by municipalities and county boards.

Of course, we have need for new laws. This country is changing constantly by reason of its progress. Without adequate governmental measures our progress would be stifled. But we don't need twenty thousand new laws a year—nor yet 2,000. Certainly, we have no need for more Constitutional amendments.

Contempt for Government and disregard for all law is the natural result of confusion and contradiction of statutes. Making the Constitution a subject for acrimonious discussion, dispute, criticism and agitation, is a movement adroitly directed by the Third Internationale. They recognize the Constitution as an insurmountable obstacle in the United States. Hence their plans for its destruction which took form nearly 35 years ago and which have progressed steadily ever since.

There is a solution for this destructive movement. The solution is in five parts and is: 1. Compelling public officials to regard their oath to support, maintain and defend the Constitution as obligatory in letter and spirit. 2. Requiring all schools and colleges to teach American principles and ideals, so that patriotism might be fostered among school children, and the true spirit of America might be created for the upbuilding of future American citizenship. 3. Strict enforcement of every law against sedition, and the holding to legal accountability every individual or organization advocating measures detrimental to the principles of this Government. 4. A national campaign of education to revive and stimulate confidence in our Federal Government. 5. Opposition to all organizations holding subversive motives, to the end that loyalty to the Constitution and the Flag might not be undermined.

Interruption

CHARLES EVANS HUGHES, while he was yet Secretary of State, said: "It is the day of the fleeting vision. Concentration, thoroughness, the quiet reflection that ripens judgment are more difficult than ever."

Carlyle tells us that: "Silence is the element in which great things fashion themselves together, that, at length, they may emerge, full formed and majestic, into the daylight of life, which they are henceforth to rule."

There is irony in the fact that Alexander Graham Bell, inventor of the telephone, did his intensive research work late at night, in order to be free from interruptions. Irony, because the telephone is without doubt the greatest element of interruption—the most outstanding destroyer of silence and concentration—in modern business.

One wonders if the framers of the Declaration of Independence and the Constitution of the United

—— on Timely Subjects

States, a copied and revered document throughout the civilized world, would have done their work so well if each had possessed a telephone at his elbow, a Western Union messenger to answer, together with radio over which to listen at night. One wonders if the Treaty of Versailles cannot, in some measure, lay its multitude of mistakes at the door of Interruption; its errors to the lack of proper concentration made possible only by uninterrupted silence.

The invasion of mechanical appliances which make for interruption (telegraph, telephone, typewriter, etc.) render executive duties and responsibilities incompatible with the duties and responsibilities incident upon thought and thought crystallization. In other words, it is becoming increasingly difficult to mirror one's thoughts (on paper) during business hours.

Because of this rapidly increasing difficulty, industry is finding an ever increasing need for the man willing and ready and wanting to work 16 hours a day—eight in the direction of his mechanical duties and eight in constructive, uninterrupted thought.

The Trend in Transportation

PRIVATELY owned automobiles and motor buses have effected a decrease of 2,242,640 passenger train miles on the New York Central Railroad alone, in the last six years.

Pinehurst, a nationally known resort, reports that during the past year only one in every four guests arrived by rail, 75 per cent of them coming by automobile.

Choosing at random three pleasure trips, on three different railroads, and comparing the ticket sales of each, it was found by one investigating committee that less than 200,000 tickets were sold for those trips in 1924, as against 369,500 in 1916.

Commercial travelers "making" the small country towns can no longer use the railroads for transportation. Each salesman must equip himself with an automobile or he cannot survive competition.

Since January 1, 1924, over 1,500 new bus lines, operating nearly 6,000 buses, have been established. The investment in the new lines exceeds thirty millions of dollars.

Development of our aerial transportation, the building of longer (and stronger) concrete highways, and the adoption of national traffic regulations, will do much to "free this country from the grasping money barons who rule us with steel rails"—as they say in radical publications.

Safer to Fly Than to Ride?

ALTHOUGH the figures are not yet completed for the year 1924, Mr. Frank F. Rogers, President of the American Association of State Highway Officials, believes the following totals to be fairly accurate: 22,500 women and children were killed by automobiles last year, and over 675,000 serious injuries to men, women and children were inflicted through automobile accidents.

Somber as these figures are, they form the basis for an interesting comparison between the accident frequency of aviation and motoring.

During 1924, the subsidized civil aviation firms in England reported 4,033 flights. Of this number, 351 flights, or 9 per cent, were interrupted. Weather conditions were responsible for more than half of the forced landings, although 91, or 26 per cent of the stoppages, were caused by engine trouble. In only three cases of the 351 forced landings did injury result to the machine, and in no case was there a fatal or serious injury to either operators or passengers. Indeed, with the exception of one fatal accident reported from an established mail route, no person carried in airplanes registered in the British Isles, and flying for hire or reward, was injured to any serious extent during 1924.

Remarkable Progress in Reconstruction

IN THE devastated regions of France it was estimated that 893,792 of the original 1,190,066 buildings were either completely destroyed or damaged beyond use by the ravages of war. Of the number of buildings damaged or destroyed, 80 per cent of the houses and 88 per cent of the factories have been rebuilt and put into operation; 90 per cent of the damaged canals have been reconstructed and over 80 per cent of the trenches used by both armies have been filled in. These percentages are calculated up to July 1, 1924. It is estimated that the work of reconstruction, if continued at the present rate, will be very largely completed by January 1, 1926.

The pre-war population of the war-affected areas was about four and one-half millions. At the time of the last census, January 1, 1924, the number that had returned permanently to the devastated regions totaled nearly 4,250,000.

Through the Credit Nationale, an agency set up by the French Government for the purpose of compensating those suffering physical loss or damage from the war, more than sixty billions of francs have been paid claimants, there remaining an indebtedness to sufferers of approximately twenty billion francs. The compensation so distributed was made partly in cash, a portion in material, and the balance in Government securities.

Twelfth Annual Meeting of the Canadian Pulp and Paper Association

THE TWELFTH Annual Meeting of the Canadian Pulp and Paper Association, held in the Ritz-Carlton Hotel, Montreal, January 28th, 29th and 30th, marked the close of a year distinguished by growth and progress, in which newsprint production played the leading part. Wood pulp production has likewise increased to record heights, and this has been the cause of much alarm to the end that the principal question in the mind of the Canadian paper industry today is how best to preserve and perpetuate the supply of wood upon which it lives, and what the most prudent, economic and effectual means are to accomplish this protection. The Association has been a great help to the Government in solving this momentous question, under the able leadership of its president, George Carruthers, and the climax of this annual meeting was reached when, following the reading of the report of the Mechanical Pulp Section, by Chairman Frank W. Clarke, the following resolution was unanimously adopted:

Resolution on Pulpwood Exportation

"Whereas, the forests of Canada have reached a stage of depletion, by reason of the demands made upon them by wood-using industries and from other causes, such as to occasion grave concern to the country, and seriously to menace the welfare of the pulp and paper and other industries dependent upon them for existence; and,

"Whereas, the unrestricted exportation of pulpwood and logs from freehold land seriously aggravates this situation, without affording the country any return commensurate with their real value or such as our economic situation demands; and,

"Whereas, this association, although vitally interested in the conversion of the raw material upon which one of Canada's greatest industries depends, has hitherto refrained from putting its view officially on record; and,

"Whereas, it cannot be denied that the exportation of the products of our forests in an unmanufactured condition is economically unsound and can only result in the dissipation of our natural resources without building up the industries of our country or securing proper returns in any other form;

"Be it therefore resolved, that until some more efficient means of control can be agreed upon as practical, that an adequate export duty should be imposed upon logs and pulpwood exported from Canada.

"That such duty should be imposed upon a graded basis, increasing annually, so that the various interests involved may have due opportunity to make any necessary adjustments.

"That the proceeds of such duty should be devoted as far as possible to the work of conservation and protection of our forests.

"That this association desires to give its assurance to the Governments, federal and provincial, that it will extend its fullest co-operation to all necessary measures to provide an adequate market for farmers' and settlers' wood should any surplus supply develop.

"That the continued study of the all important question be urged upon the several authorities to the end that our forest resources be conserved as far as possible and ultimately utilized for the develobment of home industries."

Following two days of meetings of the Association Sections, the annual meeting of the parent body was opened at ten o'clock, Friday morning, January 30th. In the regular order of business, the retiring president, George Carruthers gave the following address:

President Carruthers' Address

"In opening this, the twelfth annual meeting of our Association, my first duty is to congratulate the members upon the achievement of another year of harmonious cooperation in the building up and administration of what is rapidly approaching if, in fact, it has not already achieved, the premier place among Canada's manufacturing industries. We meet today with ranks unbroken, with pride in our achievements and with confidence in the future.

"Few industries can boast of having been unaffected by the general business depression through which Canada, in common with other countries, was called upon to pass during the year just closed. Our own was no exception to the rule. We have been more fortunate than most in one respect at least, in not having been confined to the purely domestic demand in marketing the bulk of our products. Our pulp and our newsprint paper continue to furnish the bulwark of Canada's outgoing foreign commerce. The revenue derived from pulp and paper exports in 1924 amounted to $139,491,469 compared with a total favorable trade balance of $262,416,043, forming a striking illustration of the part played by our industry in promoting the national well-being.

"Following precedent, the newsprint branch continues as the outstanding element in our growth and progress. Expansion in this branch during the year, involving the installation of seven new machines of large capacity, has added approximately 610 tons to our daily output, bringing the present total to about 4,990 tons. This represents an annual productive capacity of approximately 1,500,000 tons. Additional expansion already under way or provided for will increase Canada's newsprint potentiality by about 550 tons a day during the coming year, bringing the Dominion to her destined position as the world's chief source of supply for newsprint paper.

"Production of wood pulp has naturally kept pace with that of newsprint paper, the total for the year of all grades approximating 2,550,000 tons. This branch of the industry is similarly due for an expansion in the immediate future in order to provide material for the increased number of paper machines.

"Gratifying as this development appears, alike from an industrial and a national aspect, it may seriously be questioned if we are not in danger of advancing too rapidly and without a precautionary survey of the world's demand or giving due consideration to the permanency of the pulpwood supplies which form the basis of this remarkable edifice. Experience during the past year has demonstrated what reasonable men were never disposed to question, that newsprint paper, like other commodities, is subject to the operations of the fundamental law of supply and demand. An over-stocked market invariably brings about lower selling prices. It is for the leaders in this branch of the industry, and for those who are called upon to contribute the necessary capital, to inquire how much further expansion can be carried on with safety to the capital involved and without jeopardizing the interests of the mills already in existence.

"The question of the adequacy of our pulpwood supply is, furthermore, seriously involved with that of the growth of the industry. It is one that is rightly causing much concern. I do not at this time particularly desire to dwell upon this phase of our problems, beyond pointing out that our demands upon the pulpwood resources of the country are increasing with great rapidity, and that any means at present employed for their continuance are recognized as wholly inadequate. Apart altogether from the quantity of pulpwood destroyed every year by preventable and unpreventable means, and apart from the amount shipped out of the country, our own requirements are constantly increasing so that, in the opinion of those best qualified to know, the time when the supply will become practically exhausted is now within measurable distance, unless, indeed as some appear to believe, we have discovered the secret of the widow's cruse of oil. If I may be permitted a sugges-

tion as to the future of our Association, it is that much greater attention should be paid to the question of how best to preserve and perpetuate the supply of wood upon which our industry exists.

"Branches of our industry other than those already referred to have also been affected by the general business depression. In most lines, such as book and writings, wrappings and boards, dependent chiefly on the home market, the volume of production, while fairly satisfactory, has not been as great as was hoped for. Our finer papers have also been subjected to keener competition from abroad, brought about in part by changes in the Canadian tariff, and in part by the resumption of activities in British and European paper mills generally. In focusing our attention as we so constantly do, upon our foreign trade in pulp and newsprint, we frequently lose sight of the fact that in other lines of paper Canada really imports more than she exports. In 1924 these imports reached a value of $9,327,952, while the exports amounted to only $8,257,780, thus indicating an unfavorable trade balance amounting to $1,070,172 in these lines. Our efforts during the coming year should be directed towards reducing these imports and increasing the volume of our exports.

"In passing, it may be mentioned as a matter of record that our industry now represents a capital investment amounting to $416,612,000, an increase of $37,000,000 in one year, that it gives employment to 29,000 persons, exclusive of woodmen, distributes $38,305,000 yearly in wages and that its products are valued at approximately $250,000,000 a year.

"So far as the Association is concerned it is gratifying to be able to report that the past year has been an active and fruitful one. The several branches have functioned regularly and with good results. Progress has been made by the Committee on Industrial Research and, as their report indicates, a basis has been arrived at whereby the Association may in the future co-operate with the Government in the maintenance and direction of the Pulp and Paper Division of the Forest Products Laboratory. The Committee on Vocational Education has advanced its works a step so that the text books of the industry, in which we all take so great a pride, are practically complete. The Technical Section, under the direction of Mr. Rex W. Hovey, and the Woodlands Section, under Mr. Ellwood Wilson, have both accomplished much good work during the year and are in a stronger and healthier position than ever.

"One of the outstanding activities of the Association's year was our effort to obtain better trade relations with Australia. For some years the paper industry has laboured under the disadvantage of an adverse tariff in that country and Canadian paper manufacturers have also suffered from misrepresentation. Happily, through the instrumentality of the governments of the two countries, a trade agreement has now been arranged, which only awaits the sanction of the Canadian parliament before it becomes effective. It promises to wipe out the disabilities we are under in Australia. The Association is entitled to congratulate itself upon lending its assistance in bringing about this welcome result.

"The Association was also instrumental in organizing a Canadian pulp and paper display at the British Empire Exhibition in London. This was participated in by some forty different companies. It had the effect of advertising Canada as a paper-producing country to the millions of visitors to the exhibition and of developing a number of actual trade contracts. The Association's interests at Wembley were looked after by Mr. J. E. Stephenson, who organized the exhibit, and by our secretary, both of whom spent some time in personal attendance at the exhibition.

President Frank W. Clarke

"Appropriations were made during the year to the Forest Products Laboratory at Madison, Wis., for special services, to the Canadian Forestry Association and to our own Technical and Woodlands Section to assist them in carrying on their work.

"The question of regulating the exportation of pulpwood has engaged the attention of the Executive Council during the year. A statement, representing the views of the industry, was presented to the Royal Commission on Pulpwood and was embodied in the report of the Commission laid before Parliament in July last. The Council also took cognizance of a request from one of the company members urging that the Association should identify itself actively with the movement to secure an embargo on pulpwood exports. This resulted in a meeting at which a suggestion that the government be asked to place a substantial export duty on pulpwood going into the United States, so long as that country maintains a tariff on products derived from such pulpwood, found favor with a majority of members of the Council.

"The year also marked the tragic and untimely death of Sir William Price. The history of the development of Canada and especially the history of the paper industry of the province of Quebec can never be complete without a reference to the constructive influence and the notable achievements of this great man. His endearing personal qualities will be a pleasant memory to all who knew him.

"In concluding this brief review of the more important events affecting our industry during the year I want to pay due acknowledgment to the hearty support and cooperation given to the Executive by the entire membership and to bespeak a continuance of the same for the incoming officers."

Reports of Sections

Reports of the Sections ond the various committees were then presented, which included a very gratifying report of the Secretary-Treasurer, recording the able and progressive management in the closing year. In the course of this business, R. S. Kellogg, secretary of the Joint Executive Committee on Vocational Education, made a rousing hit by presenting to the meeting the first bound copy of the final volume of textbooks on the Manufacture of Pulp and Paper, Volume Five. He reported sales and funds as follows:

Text Book Sales to December 31, 1924

	Bound	Loose	Total
Volume 1	1836	560	2396
Volume 2	1494	81	1755
Volume 3	2372	201	2573
Volume 4	1546	164	1710
Total	7248	1006	8254

Joint Vocational Committee's Financial Statement, Jan. 1, 1925

Balance in Canadian Funds	$1841.85
Balance in U. S. Funds	1548.13
Total	$3389.98
Royalty Funds	$3539.03

Order for 1000 copies of Volume 5 are now on hand.

Report of Mechanical Pulp Section

The past year was less favorable to the producers of mechanical pulp than the preceding one. An abundant water supply in the wood grinding districts brought about an overproduction of pulp and led to a decline in prices. In 1923 the situation was helped considerably by the shortage of water in our own country as well as by labor troubles in Norway, but improved water conditions here during the latter part of the year together with the excessive rainfall experienced during 1924, resulted, as stated, in lower prices to grinding mills in Canada. Increased production of newsprint in Canada, which included a corresponding additional production of ground-wood, also affected the mechanical pulp market. The demand for ground-wood pulp was further affected by a decline in the production of boards, newsprint and tissues in the United States. Hence, while the demand for ground-wood has been fairly steady, the volume absorbed has been less and the prices not so remunerative.

Similar conditions in regard to water supply were experienced in Norway, Sweden and Finland, and while production in Norway fell off in the early part of the year owing to strikes, the loss was more than made up later. Exports from these three countries for the first eleven months of the year exceeded those for the corresponding months of 1923 by 100,000 tons. The fact that Norwegian and Finnish exchange remained at an appreciable discount throughout the year continued to give these countries an undue advantage in the foreign markets. Great Britain imported 30,000 tons more in the first eleven months of the year than in the corresponding months of the previous year; but Canada's share of this business declined by 30,000 tons.

The principal grinding districts in the United States were also favored with a plentiful water supply and imports into that country declined in consequence by some 37,000 tons. Imports from Europe, however, were practically the same as for the preceding year, Canada alone falling behind.

Prospects for the coming year center largely upon water conditions. At present stocks are large and the consuming mills can carry on comfortably until the spring. Should there be normal rainfall in the spring and summer little improvement in market conditions is to be expected. The prospective revival in general business in the United States is, however, a hopeful factor.

Arrangements were completed during the year for an exchange of information with the Wood Pulp Associations of Norway, Sweden and Finland. The information thus made available has been of great service to the members of the section.

The foregoing is a résumé of the past year as it affected our section of the industry. I think you will agree with me that the situation it presents is none too satisfactory. Yet it will be found in keeping with the records of our branch of the industry with a few exceptions for the past twenty years. An examination of the reports of the other sections of the association for the past year shows them to be little better off than our own.

The question arises as to what can be done to remedy the situation. We began the year with our eyes wide open, knowing exactly what was going to happen, and we did nothing to forestall conditions. Yet there is a remedy if we are willing to get together and work for it. I refer to the desirability of this association formulating a definite policy with regard to the use and conservation of our pulpwood supplies, the foundation upon which our industry rests.

The Canadian Pulp and Paper Association is more vitally interested in this question than any other group of individuals and it seems to me that the members should show much more concern in its solution than they have done up to the present. First of all, we should declare ourselves on the much-mooted question of regulating the exportation of pulpwood.

There are two good reasons why we should support an embargo or an effective export tax on pulpwood: first, as a means of extending the life of the available supply of wood and of assuring the survival and the future development of the industry; second, as a protection for the industry under existing conditions.

The first point has been brought before the people of this country very forcibly by Mr. Frank J. D. Barnjum. The press, as well as many prominent financiers have shown a great deal of sympathy with the movement. The public at large, however, are still more or less apathetic towards it, probably because people generally are inclined to let the future take care of itself.

Governments are the servants of the public and in this matter, quite naturally they are reluctant to take the initiative unless and until convinced that the people are aroused to its vital importance to the industrial progress of the country.

While, therefore, the campaign for conservation merits the strongest support, I am afraid that we have missed the psychology of the situation in not putting clearly before the public the economic factors involved in the exportation of pulpwood and its effect upon our industry today.

Let us look at present conditions in the industry.

Aside from the newsprint companies, which are having their own difficulties at the present time, all other branches of the industry—sulphite, mechanical and kraft pulps, fine papers, wrappings and boards—are, with very few exceptions, in a more or less critical state. It has been claimed that the high American tariff is responsible for this situation. This may be true to some extent, but there is no tariff operating against our wood pulp. I think the real reason for the situation is more fundamental. So long as pulpwood can be purchased in large volume in this country and shipped across the line, just so long shall we have competition to force the price of our finished products down to a point that makes production here unprofitable and which results in driving our mills into liquidation. We are supplying our competitors with raw material to our undoing.

The mills in the United States which operate on Canadian wood have none of the overhead charges in connection with their wood supply that we have to carry and, consequently enjoy an undue advantage over us in the cost of their raw material. When our mills are operating on reduced schedules or are entirely shut down, these heavy overhead charges have still to be carried; an American mill in similar circumstances is relieved of such charges. Are we not at least entitled to protection up to the extent of our overhead? An adequate export tax on pulpwood shipped out of the country would provide funds for the protection of our forests and to that extent wuld relieve our mills of some of the heavy expenditures that they are now called upon to meet. A straightout embargo would be even more effective.

We should also keep constantly in mind that our industry is the greatest user of two of Canada's most important natural resources—hydraulic power and wood—and that as an industry we are the largest employers of labor and the greatest consumers of Canadian products, whether derived from the farm or from the factory. The railroads of the country are also vitally interested in our progress and expansion. It follows then that continued expansion and success of the wood products industries is a matter of vital concern to every inhabitant of Canada, whether capitalist or worker. If we can impress this upon the people of Canada we can automatically impress it on the Government, for in all fairness it must be granted that it is the aim of the Government to give the people what they want. Nor do we want to appear as criticizing the Government in any way. We recognize that much of the growths and present standing of our industry is attributable to wise legislation on the part of the Pro-

vincial Governments, particularly those of Ontario and Quebec.

Both Quebec and Ontario have recently declared against the exportation of hydraulo-electric power and have taken the unassailable position that our interests require that those who would use our water-powers should come to Canada in order to do so. It is not to our advantage to permit the exportation of power to aid foreign production and to create competition for ourselves. Our power should be used in Canada for the promotion of our own industries, the creation of domestic employment, with a consequent diminution of emigration, and the enlargement of the market for our agricultural and manufactured products.

The pulp and paper industry uses more than one-fourth of the total developed water power of the Dominion. Over 50 per cent of this amount is used in the Providence of Quebec. It was stated recently in the Quebec Legislature that 750,000 cords of pulpwood were exported in one year from this province and the records show this to be about the average for the past twenty years. This represents an equivalent of 500,000 tons of newsprint paper. The wood may have brought into the province as much as $7,500,000. Kept here and manufactured into paper its value would have been, at last year's selling price, in the neighborhood of $35,000,000. The difference between the two values is made up largely of conversion costs, which, in other words, means wages for labor. In addition to this, however, its manufacture here would have entailed the development and utilization, of an additional 170,000 H. P. of electrical energy, or an increase of 46 per cent. over present consumption. The additional labor required would have given employment to some 8,000 men in the pulp and paper mills.

Everything that can be urged in favor of restricting the exportation of power is equally applicable as an argument for the restriction of the exportation of pulpwood. If we are to keep the power in Canada we must find use for it. An important move in that direction would be the retention of our pulpwood in Canada and its manufacture into pulp and paper here.

The power situation and the pulp and paper industry are thus intimately associated and unless the future of the latter is assured it will be useless to place restrictions upon the export of power. There is a vast amount of available water power in the Dominion as yet undeveloped and since the pulp and paper industry is by far the largest user of electrical energy it should not be difficult for us to convince the Governments, both Federal and Provincial, that the pulpwood situation and the future possibilities of our water powers are identical.

Granted that the interests of the settlers and other private owners of pulpwood are involved to some extent in the problem of how best to deal with our diminishing wood supply, I submit that it ought not to be very difficult for the Government, acting in co-operation with our industry, to devise ways and means whereby exportation may be reduced to a minimum or stopped entirely without sacrificing these interests. We cannot, of course, expect to take away their present market without providing another equally as good or better.

My conclusion, therefore—and I strongly recommend it to the consideration of our membership—is that the association at this meeting should take a firm and determined stand upon this question, upon both industrial and economic grounds, and that every influence at our command should be brought into action immediately to bring about its proper and equitable solution. Frank W. Clarke, chairman.

Election of President

The election of a president for the ensuing year resulted in the unanimous choice of Frank W. Clarke, president of the Gulf Pulp & Paper Co., Clarke City, Quebec. Mr. Clarke has been a tireless worker for a number of years in the Canadian Pulp and Paper Association, and last year served as chairman of the Mechanical Pulp Section. He is a devout advocate of export restrictions on Canadian pulpwood, and expressed himself as proud that the Association had gone on record as favoring an export tax.

The business meeting then adjourned after passing resolutions of appreciation for the work of the outgoing president and also that of the Secretary.

Annual Luncheon

The annual luncheon was held at one o'clock on Friday, in the Ball Room of the Ritz-Carlton. The speaker was E. W. Beatty, president of the Canadian Pacific Railway, who gave a comprehensive review of the situation confronting the Dominion today. He received the closest attention of his audience throughout.

Mr. Beatty pointed out that in 1922, when the population was 8,700,000, Canadians had paid in taxes approximately $561,000,000, of which Dominion taxes took $335,000,000. This total was 19 per cent of the year's total net production of all Canadian industries, including fishing and agriculture. It was almost half the net agricultural production and exceeded the combined gross production of Canadian forests and mines. It was 50 per cent of the net manufacturing production of that year. These were figures that gave impressive evidence of the necessity for economy.

Seated at the head table were George Carruthers, retiring president and chairman of the occasion; Frank W. Clarke, president-elect; Sir Arthur Currie; Dr. R. F. Ruttan; Hon. R. B. Bennett; Percy B. Wilson; H. F. E. Kent, and George M. McKee.

The President's Dinner

In the evening the president-elect, Frank W. Clarke, entertained at dinner, preceded by a reception in the Vice-Regal

Picture taken at the annual luncheon of the Canadian Pulp and Paper Association, Ritz-Carlton Hotel, Montreal, Friday, Jan. 30, 1925

Suite. Past President Carruthers was toastmaster. Among the guests of honor at the head table were: Hon. R. B. Bennett, K. C., Percy B. Wilson, R. S. Kellogg, Carl Riordon, Louis Block of San Francisco, J. H. Weldon, H. F. S. Kent, J. A. Bothwell, George M. McKee, Albert Halsttead, U. S. Consul General, and others.

Formal addresses were dropped for the evening, which was devoted to entertainment.

Meeting of Technical Section

The business meeting of the Technical Section of the Canadian Pulp and Paper Association took place on Wednesday morning, January 28th, in the Ritz Carlton Hotel, Chairman Rex W. Hovey presiding. George Carruthers, president of the association, being present, he was asked to speak a few words in opening to which he replied in part as follows:

"As president of the Canadian Pulp and Paper Association, it affords me great pleasure to welcome you technical men to this the twelfth annual convention of our association. The place of the technical man in the paper industry is becoming more important as the years go on. I once had a school teacher for whose judgment I had a great deal of respect; he is the father of two of the leading bankers of the United States, so that anything he said was worth listening to. While instructing us in essay writing he used to say: "Thoughts beget thoughts." I believe that if any man will sit down, collect his thoughts and try to put them on paper he will be surprised to find how many new thoughts flow in upon him. Carrying out the same line of reasoning, we can say that problems beget problems. You need never be afraid of the technical man walking around out of work because as soon as he has solved one problem there will probably be two others to take its place. Those of us who are interested in the paper industry seem to have pressed in upon us the importance of manufacturing economically. Old methods of manufacturing are in many respects very wasteful and it is the technical man that we depend upon to help us to eliminate those wastes, whether they be waste of material, time, or power, or what not. You have a great field before you. If we are going to compete with the nations of the world in manufacturing paper, it means that our technical men must be the equal of the technical men of any other paper-making nation, and I would therefore recommend that you gentlemen who have come together here try to solve not only the immediate problems of your respective plants, but that you keep your eye on the wider problems.

"We should try to establish in Canada a means of training highly skilled and scientific men. These questions will come before you and I am sure that you will take very great interest in them.

"It should be borne in mind that at these conventions one of the greatest advantages that you derive from attending them is that you increase your circle of acquaintances, and I would particularly recommend to the younger men that they try to become intimately acquainted with as many as possible of the various members. You will find that it is by exchanging views in the rotunda that you get as much valuable information as you get from listening to the papers read at these meetings."

Following the report of the secretary-treasurer, the reports of the standing committees were presented, which follow this account. Great interest was centered around the report on education, presented by Chairman T. Linsey Crossley. A number of appendixes were attached to this report, being communications from the schools in pulp and paper making and which were summarized in the foregoing report. Mr. Crossley gave an interesting account of the first man to complete the course comprising the four volumes of text books. The man had but a common school education and occupied a junior position in a paper mill. His age is forty-four years; he has eight children and lives in two rooms. It took him two years to complete the course, and this record is held up as an example of what can be done in the way of accomplishment by a zealous student.

Discussion on Apprenticeship Report

A long discussion ensued the presentation of the report of the Committee on Apprenticeship by Chairman A. P. Costigane, in which disappointment was expressed over the report of committee on apprenticeship appointed by the American Pulp and Paper Mill Superintendents' Association, which recommended the removal of the subject from the association's agenda. Speaking to this point, Mr. George Carruthers remarked as follows:

"In my opinion it is highly important that the technical section should encourage the training of apprentices. The value of our more highly trained men in the industry is greatly enhanced by having men who have been trained along practical lines so as to ensure the necessary co-operation that should take place between both kinds of men in the industry. Doubtless, there are a number of men here like myself who have served their time as apprentices, and I am sure there is not one of these men who would care to forego the valuable experience that he obtained while being subjected to that form of discipline. Now, we in this country are in competition with other countries. It is perfectly obvious that the country which is manufacturing products of various kinds through the employment of men who are especially trained is in a very much stronger position in the markets of the world than the country which is operating under a sort of haphazard method. I doubt if there is any problem in the Canadian pulp and paper industry that is of more importance, as Mr. Thorne has pointed out, than this whole problem of training men. Doubtless he has had this matter very forcibly impressed upon him in the course of his business experience and I believe, with Mr. Thorne, that this technical section must get behind the apprenticeship idea. One of the mistakes that is apt to be made in the formulating of any apprenticeship system is that it defines some specific line of training whereas the various plants have certain conditions existing within their organizations that necessitates a little different treatment of the apprenticeship system for application to these special conditions. But, there is one point upon which we can all agree and that is that the principle of training men is a matter that must be carefully followed up and put into actual operation in all cases where it is possible to do so."

Mr. W. W. Cronkhite, of the General Electric Co., Schenectady, N. Y., described in brief the method this company pursues in the schooling and training of their employees. College graduates are obliged to put one and one-half years in the shops before they can be placed in sales positions. Mr. Cronkhite explained that the ordinary college man is not suited to take up practical work without this vocational training. In their desire to raise the standard of electrical engineering graduates from college, the General Electric Co., through its board of directors, decided to make a sufficient appropriation to some university which would improve the faculty to the necessary extent to improve the caliber of students in electricity.

Both the report of the Committee of Chemical and Physical Standards and that of the Sub-Committee on the Standardization of the Freeness Test were adopted as proposed standards for one year, with instructions that the same committee should continue to act and co-operate with the American Technical Association.

Mr. W. G. Macnaughton, secretary-treasurer of T. A. P. P. I., gave an interesting account of the meeting on education, held in Winnipeg last summer, and this was followed by the presentation on behalf of Mr. Kellogg, who was delayed in reaching the meeting, of the first bound copy of volume five of the text books. Gratitude was expressed in the most complimentary terms by Mr. Carruthers for the valuable efforts put into the carrying out to completion this valuable work on the part of the editor, J. N. Stephenson, whose superior ability for such a task is clearly recognized, and Mr. R. S. Kellogg, who has the gratitude of the entire North American industry for his work in raising American funds. Hope was expressed that some suitable reward would find its way to these contributors.

Presentation of Prepared Papers

The afternoon session on Wednesday was taken up in the presentation of the papers scheduled on the program. Mr. E. P. Cameron, chief, pulp and paper division forest products laboratory, Montreal, described the laboratory, its equipment and work. Miss Louise E. McGrath, chief chemist, Booth Chemical Co., Townley, N. J., presented an illustrated talk on "White Water Coagulation."

In the absence of Mr. A. J. T. Taylor, M. E., president of Vickers & Combustion Engineering, Ltd., Toronto, Ont., his illustrated lecture on "Steam, Storage and Accumulators" was read by Mr. Lufkin.

"Further Researces in Press Rolls and Pressing," was the subject of the next illustrated paper by Dr. E. A. Rees, manager of research service, F. C. Huyck & Sons, Albany, N. Y.

Mr. A. Craigon, flow meter specialist, Canadian General Electric Co., Ltd., Toronto, gave a masterful address on "Electrically Operated Flow Meters in Pulp and Paper Mills," illustrated by numerous lantern slides. Mr. Craigon withstood the most exacting cross examination on his subject, and answered all questions in a manner to convince anyone of his thorough familiarity with it.

Thursday's Session

The second day's session opened in the morning with an illustrated talk on the subject, "Some New Developments in Continuous Pulp Grinders," by Mr. C. A. Waterous, assistant manager, Waterous Engine Works Co., Ltd., Brantford, Ont., which was discussed with interest. Following this, Mr. A. J. T. Taylor, whose paper on steam storage was presented the day before, gave one of the most interesting talks of the entire meeting. His subject, "Drying of Wood Refuse," appears on another page in this issue. The third paper on the program was a paper on the "Study of the Failure of Dryer Felts," by Mr. E. D. Whalen, of the Pacific Mills, Lawrence, Mass., which was enjoyed by all present.

Joint Luncheon of Technical and Woodlands Sections

A joint luncheon of the technical and woodlands sections was held on Thursday noon, at which Dr. R. M. Little, chief, Bureau of Rehabilitation, State Department of Education, Division of Vocational and Extension, Albany, N. Y., spoke forcibly on the subject, "Economics of Safety." This was followed by a talk by J. N. Stephenson, editor of the Pulp and Paper Magazine, on "Some Observations on a Summer in England," which was enjoyed by all of his listeners.

The afternoon meeting was jointly held by the technical and woodlands section, and was devoted entirely to a discussion of the topic, "Are Our Raw Materials Costing Us Too Much and Have We Reached the Maximum of Efficiency in Their Utilization?" The discussion was lead by Mr. C. B. Thorne, of the Riordon Co., Ltd., who presented some figures that were a revelation to many present, but owing to their confidential nature their publication is withheld.

Election of Officers

Election of officers was the final order of business in the technical section, after the adjournment of the joint meeting. This resulted in the election of the following: Chairman, C. Nelson Gain, Garden City Paper Mills Co., Ltd.; vice-chairman, H. O. Keay, Laurentide Co., Grand Mere, Quebec; councillors, A. P. Costigane, Ontario Pulp and Paper Makers Safety Association; C. V. S. Hawkins, Price Brothers & Co., and R. W. Hovey, Abitibi Power & Paper Co., Ltd.

A moving picture illustrating the production of rosin size was shown by Mr. K. Huegin, Vera Chemical Co., of Canada, on behalf of the Paper Makers Chemical Company, Holyoke, Mass.

The informal smoker on Thursday night was termed a "Lumberjacks' Frolic." It was a most enjoyable affair and up to the standard of jollification that has always characterized these annual fun fests. Good music, attractive singers and dancers, a first class strong-man feature, snappy boxing bouts, Jimmie Rice, et al., and beans.

Reports of Committees

EDUCATION

Your committee approaches its annual report this year with the review of a decade.

The first three years of its existence were occupied in a survey the situation and endeavors to initiate and support work in various mills. Several more or less successful schools or classes were inaugurated and interesting facts were noted in their operation, but the lack of texts and qualified teachers proved handicaps in addition to difficulties due to varying shifts.

Your committee took an active part with other technical societies in bringing about action in the matter of the report of the Royal Commission on Industrial Training and Technical Education which resulted in the passage of Bill 131 of the 13th Parliament (An Act for the Promotion of Technical Education). Ten million dollars was provided by this bill to assist the Provinces in the financing of technical school work.

The most important step in the educational progress of the industry was taken, when, in September, 1918, the joint committee on Vocational Education of the Pulp and *Paper* Industry in Canada and the United States was formed. Its first step was to ask the industry in the two countries to provide means for the preparation and publication of a set of authoritative texts to be used for correspondence or class instruction and reference work. The industry in the two countries has provided nearly $55,000 for this work. The reports of your Committee for the past three or four years note the progress made possible by this generous action on the part of the industry. The reports of the Joint Committee for the last year will follow this, showing the sales of text books to date.

These books have been received with great appreciation by the industry, and their publication has resulted in a quickened sense of the need for instructional work. In the place of the one school, that of the University of Maine, there are now five universities and two special schools wherein instructional work is given in the technology of pulp and paper. Reports from some of these are attached hereto. Their experience shows three classes of men in industry.

First—A few men who have the energy, patience and ambition to take up and pursue independently definite courses of study covering a year or more. Such men need little urging to take up courses.

Second—A large number who would take up study courses if there were evidenced some special interest on the part of their employers and some incentive at the completion of their course.

Third—A large constituency of men who do not know enough to realize their need or who feel that they will expose their ignorance to younger men. Such men need, more than anything else, some form of elementary work, so arranged that they will frequently find points of contact with the work they are doing. The greatest difficulty with these men is to get them under way, especially in elementary arithmetic.

Having this classification in mind it is evident that mere approval on the part of the employer is not sufficient, and further that nearly every case requires different treatment.

Experience has shown that the form of course best adapted to industrial workers is the correspondence type and the results are obtained when the company adopts a definite policy with reference to the carrying on, financing, and completion of courses.

The most approved plan is that whereby the student, while paying for his own course, is enabled by the employer to take advantage of any cash discounts, and is advised that if he completes the course and obtains the diploma while still in the employ of that company, part or all of the money paid by him for tuition will be returned to him.

To get best results the operation of the plan should be followed closely by the Company. The student should not be allowed to drop his payments lightly, as this is a part of the mental discipline involved. There is on the application blanks of all correspondence schools an agreement to the effect that the course is not subject to cancellation or refund, and it is a definite factor in a man's success that he learn to appreciate a contract.

Students lagging in their work should be followed up by some one not interested in the school (some official of the company). The school itself should be checked up by the company and reports should be called for from it on students, both those doing work regularly and those going behind. A company official can often obtain from a talk with the student, a better idea of his difficulties and causes of delay, and can then advise the school. It would be possible at times to rearrange the work for the special case and thus hold the interest of the student.

During the fall there were sent out from the office of the joint committee a striking circular with suggestive questions and enclosing a return post card calling for information as to the educational opportunities provided by the industry. The

different schools were advised of the receipt of these cards and the inquirers were supplied with comprehensive circular describing the various schools.

This Association is especially interested in the Gardenvale School which reports that a college graduate has completed the four volumes of text in nine months and that a man forty who had only a common school education has completed the four volumes in two years. These results are very encouraging as it shows the course is not too long, or above the mentality of any ambitious man who can read and write. Appendix 4 of this report is a letter from the Institute of Industrial and Domestic Arts to the Supervising Committee, which is included here by request of that committee.

The local representative of the Institute at a large Canadian mill says: "Regarding the incentive to work at the course, I think that my steady students find the regular class a great help in keeping them at work. It gives them the great opportunity of time, place and atmosphere, which I am afraid are difficult to find in the homes up here when it comes to serious study. There are so many other things to command the attention, that if the class fails to hold them, nothing else will."

From the accompanying reports of schools it will be seen that probably 1,200 men have taken up study of the pulp and paper industry in the two countries. As there are probably 150,000 men employed in the mills it will appear that less than one per cent of the employees have undertaken work on the material provided in the text books. Presuming that as many are working on other courses outside our jurisdiction, it would appear that only about two per cent are taking up work to add to their earning power.

The National Industrial Conference Board estimates that between seven and eight per cent of the positions in the industry are important or executive. Apparently only two per cent of the men in the industry are striving to prepare themselves for seven per cent of the positions.

Further, about one fourth of those positions are now held by college men. If this should increase to fifty percent, it is still apparent that one-fourth of the important and executive positions must be filled by men who have relied entirely on natural ability and experience. Industrial progress today demands something besides those two valuable qualifications. It is therefore the opinion of this committee that all mills adopt some definite policy to induce employees to undertake and carry on some form of study, and especially the courses prepared by the industry itself which cover every phase of the application of science to the making of pulp and paper.

Respectfully submitted—George Carruthers, A. P. Costigane, C. Nelson Gain, J. N. Stephenson, T. Linsey Crossley, (chairman).

APPRENTICESHIP

Your committee has been active during the past year as individuals only. No regular meetings have been held, although much missionary work has been done by individual members of the committee. The principal development during the year, worthy of note, is the report brought in by the committee on apprenticeship appointed by the American Pulp and Paper Mills Superintendents' Association to co-operate with committees appointed by the American Technical Association and the Technical Section of the Canadian Pulp and Paper Association. This report is illuminating in that it condemns the apprenticeship idea root and branch. The following is the concluding sentence of the said report which shows clearly that your committee cannot look for very much assistance from the American Superintendents Association while the members thereof hold the views given expression to.

> "Your committee, after careful consideration of the above facts feels that standardized apprenticeship will not be helpful and is not desired by the American pulp and paper industry at present. In conclusion we recommend the dismissal of the committee and the removal of the subject from the Association's agenda."

The problem of apprenticeship bristles with difficulties that can be overcome only by patient study. Certain mills in Canada are at the present time putting forth efforts to solve the apprenticeship problem and are training certain of their employees along lines most suitable to their own mills. Your committee is watching these developments carefully, but has not so far arrived at any definite conclusions. The query is often put as to what will become of apprentices when their period of training has expired, the fear being that industry will be unable to absorb them. The fact that 42,641 skilled men have entered Canada from other countries during the last three years and eleven months and been absorbed into Canadian industries seems to indicate that Canadian young men trained in Canada would have every reason to look to a future reasonably free from unemployment. Also the very apparent development of the paper industry in Canada can undoubtedly be relied upon to absorb any reasonable number of young men whose qualifications are above the average.

Efforts were made towards the end of the year to convene at a meeting of representative mill managers to discuss the question of apprenticeship and to give your committee a clear idea of the viewpoint of men having intimate knowledge of practical mill management problems. Unfortunately such a meeting has not taken place at this date. The retiring committee would, however, respectfully suggest that a meeting of mill managers be held as early in the year 1925 as is possible.

Respectfully submitted — George Carruthers, C. Nelson Gain, J. O. Mason, T. L. Crossley, J. N. Stephenson, A. P. Costigane (Chairman).

WOOD MEASUREMENT

At the last annual meeting of the technical section your Committee on Wood Measurements presented a report in which the Cubic Foot Solid Wood was recommended as a more precise unit of measurement than either the Cord or the Foot Board Measure—the two units commonly employed. Weighing was also noted as being a method of value which had been suggested, but it was the opinion of your committee that the Solid-Volume method would be of much simpler and wider application.

The call for weighing as a method of wood measurement comes obviously from the mill end of the operation. In the woods, volume is the natural basis of measurement. The difficulty in finding a system of wood measurement acceptable to the Pulp and Paper Industry as a whole is thus in reconciling the Woods Department, where wood in standing trees is obviously impossible to weigh, with the Mill, where the wood early in the process loses its original structure entirely and cannot be measured by volume. There must thus, obviously, somewhere along the path of the wood from the standing tree to the paper roll or pulp lap, be a transition from one system of measurement to the other. Either the Woods must accept the Mill's measurement and convert from volume to weight, or else the Mill must accept the Wood Department's measurement and convert weight to volume after the wood reaches the point where it loses its shape and can only be measured by weight.

In any case, knowledge of the density, that is, the weight of bone dry substance per cubic unit of wood, becomes of importance, so that weight can be converted to volume or volume to weight. Recognizing this, your committee, during the present season, has been devoting its attention to a study of wood density. While this study has not yet progressed sufficiently far to warrant definite recommendations at the present time, tests so far point to a conclusion, which if confirmed, will establish a relation that will have an important bearing upon the applicability of wood volumes to mill measurements. It was thought that this might be of sufficient importance to be reported at the present time.

The conclusion is that, while there are large individual variations in wood density the average of the same species, and from the same district, is practically a constant.

The importance of this conclusion is that, should its truth be established, wood volumes—in terms of cubic feet solid wood—can at once be converted into equivalent tonnages bone-dry or air dry, but multiplication by a constant factor without it being necessary to make any tests upon the wood for moisture or density whatsoever. This would at once establish the superiority of the solid volume measurement over weighing, as wood weights are meaningless unless accompanied by moisture tests.

Now it is a matter of common observation that logs of the same species may vary widely in weight; also that the volume of the wood changes very appreciably due to shrinkage while

drying. At first sight, therefore, the probability of finding the average density to be a constant seems very remote. On looking into the matter carefully, however, things appear in a more favorable light.

It is true that the wood of individual trees of the same species will vary in inherent density, in proportion as the tree is influenced by factors affecting growth—some of these factors being spoken of in more detail later on. If the number

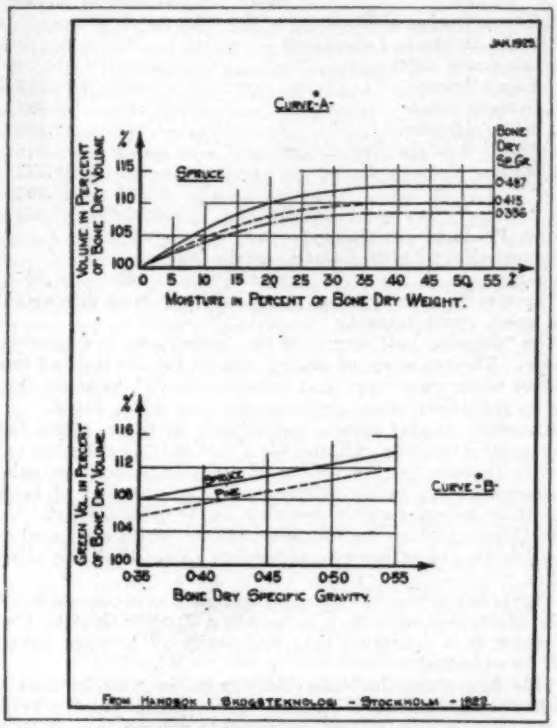


Fig. 1—Curves showing relationship between volume and moisture percentage

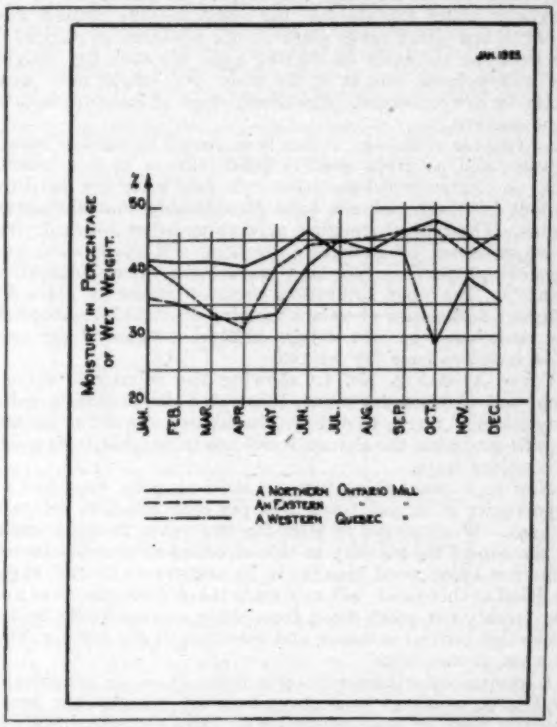

JAN. 1925
MOISTURE IN PERCENTAGE OF WET WEIGHT.
JAN. FEB. MAR. APR. MAY JUN. JUL. AUG SEP. OCT. NOV. DEC.
A NORTHERN ONTARIO MILL
AN EASTERN " "
A WESTERN QUEBEC "

Fig. 2—Average wood moisture from three Canadian mills

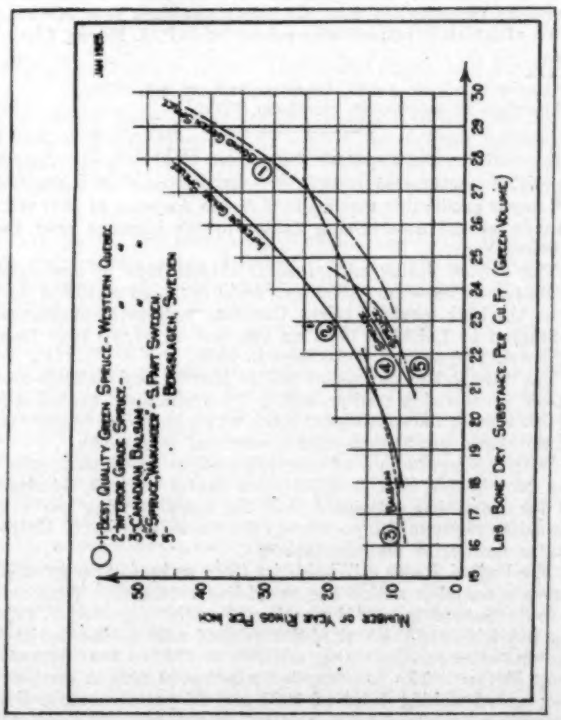

JAN 1925.
1-BEST QUALITY GREEN SPRUCE - WESTERN QUEBEC
2-INTERIOR GRADE SPRUCE -
3-CANADIAN BALSAM -
4-SPRUCE, WALMANDER - S. PART SWEDEN.
5- - BERGSLAGEN, SWEDEN
LBS BONE DRY SUBSTANCE PER CU. FT. (GREEN VOLUME)
NUMBER OF YEAR RINGS PER INCH

Fig. 3—Curves indicating relationship between density and rate of growth

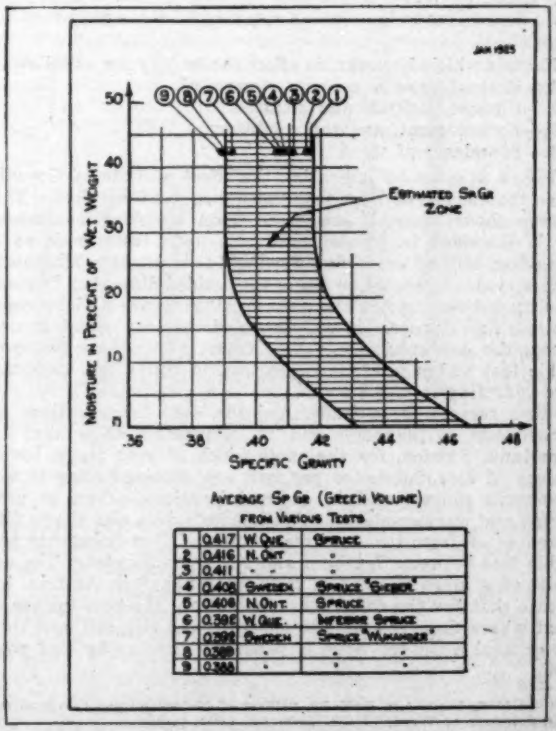

JAN 1925
MOISTURE IN PERCENT OF WET WEIGHT
ESTIMATED SP GR ZONE
SPECIFIC GRAVITY
AVERAGE SP GR (GREEN VOLUME) FROM VARIOUS TESTS
1 0.417 W. QUE. SPRUCE
2 0.416 N. ONT "
3 0.411 " " "
4 0.408 SWEDEN SPRUCE "S-BERG."
5 0.406 N. ONT. SPRUCE
6 0.396 W. QUE. INTERIOR SPRUCE
7 0.392 SWEDEN SPRUCE "WALMANDER"
8 0.389 " " "
9 0.388 " " "

Fig. 4—Curves showing relationship between specific gravity and moisture percentage

of logs being considered is large, however, it is possible that the different growth conditions will be evenly represented, and that variations due to these causes will average out.

With respect to the effects of variations in moisture content—both the direct effect resulting from differences in the weight of water contained in the wood, and the indirect due to shrinkage which takes place as the moisture is reduced—the first has obviously no bearing upon the oven dry weight per unit volume, and it is the oven dry weight only with which we are concerned. The direct effect of moisture is thus of no concern.

As regards shrinkage, it has been shown by various investigators that as green wood is dried there is at first practically no change in volume; that it is only after the moisture content has been reduced quite considerably that shrinkage begins. The critical moisture percentage below which drying is accompanied by changes in volume and mechanical and physical properties, has been named the "fiber saturation point."[1] The fiber saturation point of spruce is given by different authorities at values ranging from 23.5 to about 28 per cent, based on wet weight, and from 30 to 40 per cent when based on bone dry weight.

Curve A of Fig. No. 1,[2] showing the volumetric change from wet to bone dry wood, illustrates the preceding point very clearly. Curve B, of Fig. 1 indicates for wood of various specific gravities, the change in volume in passing from green to bone dry state.

Now as a usual thing in most mills no pulp wood has an opportunity of drying below 23.5 per cent moisture before it is used. Wood stored in piles for two years or more might at the top of the pile dry to this moisture or possibly lower; some fire-killed wood brought in by settlers or by rail might be dried to this point, but any wood taken from the river and any freshly cut green wood from other sources would be far above this critical moisture and therefore of the same volume as when it was felled.

Experimental evidence on this point is shown graphically by Fig. 2, which gives average moisture percentages, based on daily tests of wood consumed at three Canadian Mills in different territories during year 1924.

This, therefore, indicates that for our purposes shrinkage in volume due to drying may be disregarded entirely and that the Green or Wet Volume may be used by the Industry in their density investigations as applying to their pulpwood in general.

Factors which, however, do affect the density are as follows:

1.—Rate of growth, or year ring width.
2.—Climate, latitude and altitude.
3.—Environment, and soil conditions.
4.—Soundness of wood.

Fig. 3 is given as indicating the effect of Rate of Growth upon the amount of Bone Dry Substance per cubic foot. The curves shown thereon are based upon investigations made by Wijkander[3] in Sweden, and also upon tests made at a Canadian Mill by the Forest Products Laboratories, Montreal. There is also indicated on curve the decided difference in yield quality between sound and poor quality spruce and between Balsam and Spruce. It will be noted that for sound spruce wood, the dry substance varies from twenty-three lbs. per cubic foot at ten year rings per inch to thirty lbs. at forty-five year rings.

With respect to Latitude, Altitude, etc., investigations of Ortenblad,[3] Wijkander[3] and G. Kinnman,[3] show that in Norrland, Sweden, for the same width of year rings, lower values of Dry Substance per unit are obtained close to the mountain ranges, and in exposed locations,—than in protected and warmer places. Wijkander's data also shows differences of from two to three pounds of Dry Substance per cubic foot between Southern and Northern Sweden. The results of a large number of tests by Jankas[3] in Austria, indicate that for the same year ring width, the best Spruce is that where there is access to moisture and rich soil, and that in general a lighter wood is produced from rocky and poor soil.

[1] See U. S. Dept. Agr. Bull. 70, "Effect of Moisture upon the Strength and Stiffness of Wood," H. D. Tiemann, 1906, p. 82.

[2] Handbook I Skogsteknologi, Stockholm.

[3] Skogsvards Foreningus Tidskrift, July-August, 1923.

		No. Blocks or Samples	Average Sp. Gr.
A Northern Ontario Mill,	1924	1,089	.416
	1920	3,559	.411
	22-23	11,000	.406
A Western Quebec Mill By Forest Products Laboratory of Montreal, 1923			
Sound Spruce		66	.417
Inferior Grade		128	.392
Dr. Sieber,[4] Sweden		42	.408
"Jankas,"[5] Austria, Spruce		71	.376
Wijkander,[5] Sweden, Spruce		302	.388
" "		283	.392
" "		1,000	.389
Forest Products Laboratory, Montreal, Novo Scotia Balsam, good quality		40	.347

The specific gravity in all cases refers to bone dry weight and green (wet) volume.

The "thinning out" degree of the forests also is a material factor. The tendency, of course, will be for the isolated tree to have wider year rings, and consequently lighter wood, than the comparatively slow growing tree of a dense forest.

Although, as just shown, undoubtedly there are many factors making towards variations in the Wood Density from one tree to another, yet the results of many investigations point to comparatively small differences in the averages of large quantities grown, roughly speaking, in the same district.

In this connection the following figures, which are based on many tests, are of interest as tending to establish the above point.

Figure No. 4, which is based on information at present available, illustrates what may be termed a Specific Gravity Zone in which it is estimated that practically all average figures will be embodied.

This figure also indicates the change in Specific Gravity with varying moisture content,—the specific gravity being based on Bone Dry Weight compared to volume at each Moisture Percentage.

As already intimated at the beginning of this report the Committee considers that the data so far obtained are not sufficient to make a comprehensive and definite report, and therefore recommends that this important work be continued.

All of which is respectfully submitted.—P. J. Murer, Chairman.

[4] Papier Fabrikant, Berlin, December 2nd and 9th, 1923.

[5] Handbok Skogsteknologi, Stockholm, 1922.

Newsprint Paper in 1924 *

A NEW continental record of 2,900,000 tons of newsprint paper production was made in North America in 1924 with Canada as the determining factor in the increase over the previous year.

The United States mills made 1,471,000 tons of newsprint in 1924, a decrease of 14,000 tons from 1923 and of 40,000 tons from the high mark of 1920. Canadian newsprint production amounted to 1,353,000 tons, an increase of 87,000 tons from 1923 and 54 per cent more than in 1920.

The one modern newsprint mill in Mexico made a little over 11,000 tons, and a similar mill in Newfoundland contributed 65,000 tons to the continental total, which exceeded 60 per cent of the world production of this essential commodity.

With the production of newsprint paper in Canada only 9 per cent behind that in the United States in 1924, admirers of the Dominion anticipate that the rapidly rising curve of Canadian tonnage will soon cross the stationary ilne of United States newsprint manufacture.

The United States still holds its place as by far the greatest paper consuming nation the world has ever seen. With only a few thousand tons of domestic news print exported in 1924, the publishers in the United States used nearly nine-tenths of the Canadian production, in addition to 156,000 tons imported from Europe. The consumption was 50,000 tons in excess of the record-making total of 1923 and 28 per cent more than

*Abstract of report made by R. S. Kellogg, Secretary, at the annual meeting of the News Print Service Bureau in Montreal, January 30, 1925.

in 1920, the latter in its turn being a record to that date. On a per capita basis, newsprint consumption in the United States has grown from 4 pounds in 1860 to 16 pounds in 1900 and to 50 pounds in 1923 and 1924.

The recognized directory of the trade lists more than 22,000 newspapers in North America at this time, with an increase of nearly 200 in number during the past year. Amout 10 per cent of the total listings are daily newspapers, and the English language dailies in the United States have circulations amounting to 33,000,000 copies of the daily issues and of more than 22,000,000 copies of the Sunday issues. During the past five years the dailies have increased 25 per cent in circulation and the Sunday newspapers 42 per cent. Upon examination of the United States newspapers which have circulations in excess of 100,000 copies each, we find that the daily issues averaged 28 pages in 1924 and the Sunday issues 103 pages, contrasted with 23 and 79 pages respectively in 1920. The most marked characteristic of the metropolitan newspaper to date has been its steady increase in size and circulation. There is now a copy of a daily newspaper published for every three and one-half inhabitants in the United States, or more than one for every family, which shows the far-reaching daily newspaper habit.

The total volume of newspaper advertising in 1924 was practically the same as in 1923 and in 1920. Periodical advertising, while 3 per cent more in space filled in 1924 than in 1923 was still 15 per cent below the high mark of 1920.

Newsprint paper production in North America has increased at an average rate of nearly 7 per cent compounded annually for the past twenty-five years. The new mills and additions to existing mills now under construction or planned for will bring the capacity of the North American industry up to 12,000 tons daily in 1926, unless some mills should find it more profitable to change to other types of operation.

Newsprint Bureau Officers Re-elected

At the meeting of the Newsprint Service Bureau on Friday afternoon in the Ritz Carlton Hotel the following officers were re-elected: George M. McKee, president; Louis Bloch, Sr., vice-president; R. S. Kellogg, secretary-treasurer; executive committee, Percy B. Wilson, W. E. Haskell and J. L. Apedaile.

A high tribute was paid to Secretary-Treasurer Kellogg for his efficient and untiring work, to which he replied by sharing the honors with his staff.

A Graphic Review of the Canadian Pulp and Paper Industry

The annual statistical review of the industry, prepared for the Pulp & Paper Magazine by the Canadian Pulp & Paper Association, shows the remarkable development and continued growth of Canada's most important manufacturing industry.

The Newsprint Division

Chart No. 1, The Newsprint Division, shows the monthly production of newsprint in Canada and in the United States and the steady development which has taken place in the newsprint industry of Canada.

In 1917, Canadian mills produced 689,847 tons of newsprint, representing a monthly average of 57,487 tons. This was approximately one-half of the quantity produced in the same year by the mills in the United States, the total output of which amounted to 1,359,000 tons, or a monthly average of 113,417 tons. In 1923 the monthly average of the Canadian mills was 105,250 tons, the total output for the year being 1,263,000 tons, representing an increase of 83 per cent over that for 1917. For the year 1924, December production figures are not available, but up to the end of November the monthly average production was 112,103 tons.

With the new machines installed in 1924 and others scheduled for the coming year, it is expected that the Canadian production line will cross the United States' production line some time during 1925 and Canada's position as the world's leading newsprint producer will thus be definitely established.

The table below gives the annual newsprint production of Canadian and United States mills from 1917 to date.

The last column shows the relation which the production of Canadian mills has borne to the total combined output of the two countries. It will be seen that this proportion has increased from 33.6 per cent of the total in 1917 to 47.8 per cent in 1924.

Production of Board, Book and Writing and Wrapping Papers

The importance of newsprint in the pulp and paper industry of Canada has rather obscured the fact that a considerable quantity of other grades of paper is manufactured by Canadian mills. The output of these other grades has not attained the proportions reached by newsprint since the market for them is not so great, being confined largely to meeting domes-

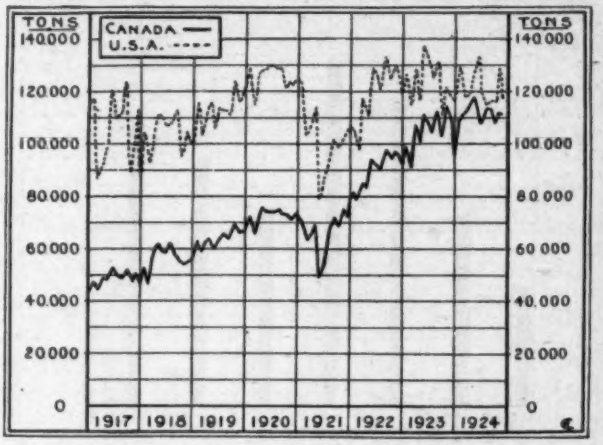


Chart 1

tic requirements or entering into competition with other countries in overseas markets.

Since 1917, however, which is the first year for which we have official records, the total output of boards, book and writing papers and wrapping papers has increased from 152,580 tons to 296,614 tons in 1923, which shows that notable expansion has taken place in this respect.

In 1917 Canadian mills produced 48,140 tons of book and writing paper, 50,360 tons of wrapping paper and 54,080 tons of boards; the 1923 records show a pro-

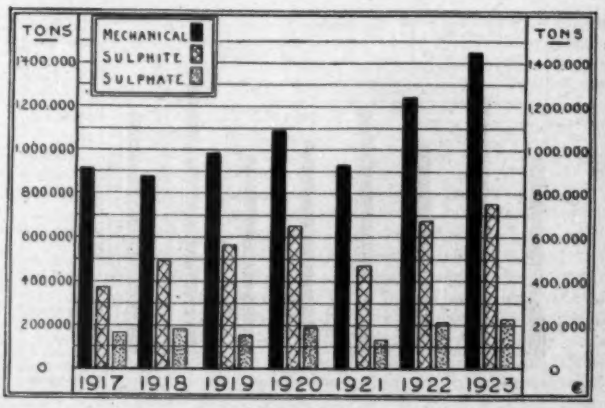


Chart 2

duction of 81,120 tons of book and writing paper, 84,912 tons of wrapping paper and 130,580 tons of boards. The greatest gain in this period is shown in the manufacture of boards, which has increased almost two and a half times.

Details for the various grades are given below:

	Boards	Wrapping	Book & Writing
	Tons	Tons	Tons
1917	54,080	50,360	48,141
1918	87,749	61,180	48,150
1919	137,678	59,697	58,228
1920	158,041	77,292	73,196
1921	89,114	55,898	53,530
1922	113,200	81,793	64,808
1923	130,582	84,912	80,120

In addition to the above there were 45,480 tons of other grades of paper produced in 1923, making a total for all grades other than newsprint of 341,093 tons.

These figures are presented graphically in Chart No. 3.

United States Imports in Terms of Wood

Chart No. 4 shows Canadian exports to the United States of unmanufactured pulpwood and of woodpulp and newsprint expressed in cords of wood.

In 1924, Canada contributed to the paper supply of the United States, more than 4 million cords of pulpwood, either

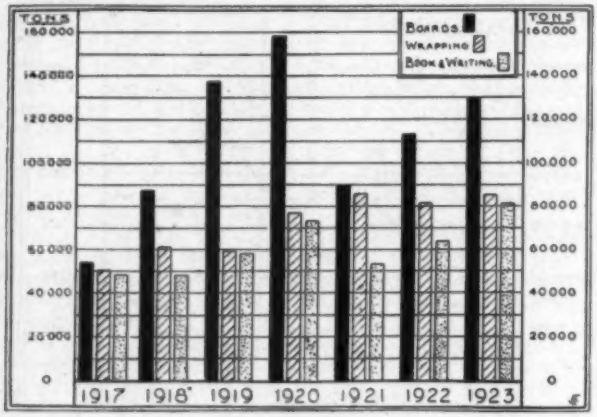


Chart 3

in the form of raw wood, of wood-pulp or of newsprint. A small quantity is exported in other forms, but these are comparatively insignificant.

To produce a ton of mechanical pulp requires a little over one cord of wood; a ton of chemical pulp represents approximately two cords of wood and a ton of newsprint accounts for about one and a third cords.

Previous to 1922, as will be seen from the chart, the quantity of pulpwood exported in the unmanufactured state was greater than the quantity exported either as wood pulp or

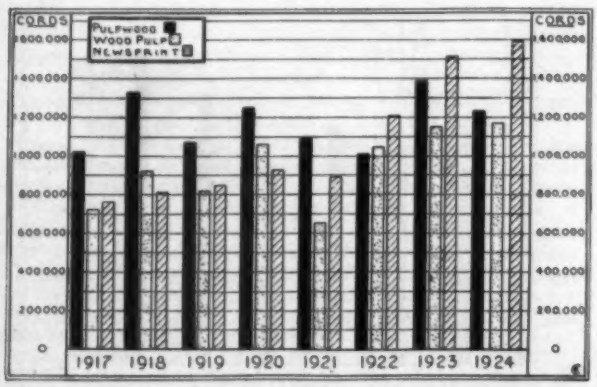


Chart 4

as newsprint paper. In that year, Canadian shipments of pulpwood declined to the lowest point since 1915, while exports of wood pulp and newsprint increased sharply over the previous year. In 1923 the exports of pulpwood reached the highest total recorded, viz, 1,384,000 cords, and exceeded the amount exported in the form of pulp wood by a considerable margin.

Canada's exports of unmanufactured pulpwood fluctuate from year to year, the lowest point reached in the period dealt with being 1,011,000 cords in 1922, while the average exportation for the past seven years was 1,165,000 cords.

Newsprint accounted for more pulpwood than was exported in the raw state in 1922 for the first time and was also greater in 1923. This is a much more satisfactory condition of affairs from the Canadian viewpoint and is likely to be permanent in view of the increasing quantity of newsprint shipped to the United States. The growth in the exports of newsprint has been continuous in this period with the exception of the year 1921. Exports of newsprint in 1923 were practically double those in 1917 and indications are that in 1924 these exports will show a further increase of some 60,000 tons.

Details of the quantities of pulpwood, wood-pulp and newsprint exported to the United States from 1917 to 1924 and the total number of cords represented by these exports are given below. The figures for December 1924 are estimated, as official returns are not available at the time of writing.

	Pulpwood Cords	Wood-pulp Tons	Newsprint Tons	Cds. of Wd. Represented
1917	1,017,845	473,849	559,112	2,500,000
1918	1,329,565	544,188	596,270	3,065,000
1919	1,070,275	492,927	622,662	2,740,000
1920	1,247,404	642,933	669,996	3,219,000
1921	1,092,553	385,819	654,849	2,633,000
1922	1,011,332	605,961	887,835	3,261,000
1923	1,384,230	678,082	1,115,355	4,058,000
1924 (11 mo.)	1,160,777	622,729	1,079,676	3,708,001

Report of Canadian Woodlands Section

As Chairman of this Section I have during the past year as during the first year you did me the honor to appoint me your Chairman, acted as secretary of the Section. I feel that owing to lack of time this work has not been carried out as fully as it should have been, and I feel that it is not right that the Chairman of the Section should be expected to do all the necessary correspondence as from the nature of the case his time is taken up with regular business, and there is enough work to keep one man busy continually. I again urge that a paid secretary be appointed and that a sufficient amount of money be appropriated for this purpose. If the right man is chosen, he would save his salary many times.

During the past year I have endeavored to keep in touch with all the members, to send out to them all information of interest which I could collect, and have been able in several cases to supply information asked for and to be of service to some of our members. I can report a great deal of progress in the standardization of logging costs. A joint meeting was held during the summer in Montreal with the Cost Accountants' Branch of the News Print Service Bureau. Forms for cost reports were drawn up and some seven or eight companies have agreed to co-operate in this work.

The results obtained by the Forest Products Laboratory at Madison, Wisconsin, in the study of paper making from rotten wood, to which you voted two thousand dollars at your last meeting, were brought to a successful conclusion and showed that with most of the common rots, just as good sulphite pulp can be made as from sound wood, and with very little loss. These results have been checked in full-sized experiments by the Laurentide Company, and Price Bros. & Company, and in their experiments wood-room losses have been taken into consideration, and it has been shown that all of these woods should be taken out and used for sulphite.

Studies of the amount lost by sinkage in the various classes of rotten wood are under way by the Laurentide Company, and when these are finished we shall be able to say definitely just how much of this material can be salvaged.

The Woodlands Section has continued its co-operation with the Technical Section in the work of the Committee on Wood Measurements, and very carefully prepared tables have been made showing the average cubic contents for 9, 12, 13½, and 16 foot logs. About 40,000 logs were measured and the variation of any individual log from the average has been found to be slight. Much interesting information has been collected as to the taper of logs, and further studies are being carried out to determine the relation between weight and moisture with a view to simplifying and standardizing the purchase of wood by weight rather than by volume, and also to weighing the wood in the mills, so that it can be checked with the finished product.

I beg to thank the members for their cordial co-operation and interest in the work of the Section, and would again strongly urge the appointment of a paid secretary.—Ellwood Wilson, Chairman.

Report of Sec.-Treas. H. P. Baker

THE change in the time of the annual meeting from April back to February makes it necessary to report on three-quarters of the fiscal year beginning April 1, 1924. In view of the change in the method of financing the Association, put into effect at the beginning of the present fiscal year, the Executive Committee has felt that it would not be wise to change the fiscal year to correspond with the calendar year of the Association until after the completion of the first fiscal year under the new plan of financing put into effect last spring.

It will make for a more satisfactory handling of the business of the Association if the fiscal year is changed to correspond with the calendar year of the Association, or still better, with the standard calendar year. Recommendation is made, therefore, that the change be made so that the next fiscal year should begin either January 1, 1926, or January 1, 1927.

The holding of the forty-eighth annual meeting in February of this year, two months earlier than the annual meetings of the National Paper Trade Association will probably determine whether the change in time has been a wise one and what is best for the entire industry as far as the manufacturers and merchants meeting separately or together.

Considering 1924 as a whole, the year has not been a satisfactory one for the paper and pulp industry. It is true that production has been maintained at a surprising level and yet the situation in other factors, affecting production, have been such as to make the year, generally speaking, one of low profits. There has not been a serious depression, and it is probable that the pulp and paper industry has been less affected by the slowing up of business which occurred in the summer and early fall than some of the other great industries. The defeat of the restless, dissatisfied and often radical groups at the last election produced calmness and optimism that immediately affected the whole business structure of the country. Where the production in the industry had fallen off during the month previous to election, it immediately showed a gain following election, and the reports for December, even though the month was affected materially by the holiday season, was one of improvement.

There is an underlying spirit of confidence and optimism that appears to be firmly based upon a thoroughgoing knowledge that general conditions are sound and of such a character as to forecast very satisfactory business for the first half of the year.

The period during which the present secretary has served the Association, beginning, as it did, in 1920, has, generally speaking, been a period of reconstruction, readjustment and, on the whole, poor business. The experience of the industry during the past four years has not been entirely disadvantageous. It has, in fact, forced manufacturers to reduce cost of production and marketing and become accustomed to doing business on a closer margin of profit. The experience has not been a pleasant one and it is hardly in place to say that it was an experience necessary to a condition that would allow of satisfactory business. It seems to be apparent, however, that the past four years has brought the industry to a point where it is looking facts in the face and appreciating these facts, thereby putting itself into a position to carry on good business in the months immediately ahead, and possibly for the entire year.

The past four years have been exceedingly difficult ones in the work of the Association. Naturally, the Association has felt the period of depression in much the same way as it has been felt by the industry. If the industry has been schooled and seasoned by what has been to many a period of adversity, to the same extent and even more the Association has, through force of necessity, accomplished changes which have put it on a much more satisfactory basis for its service to the industry in the years ahead.

Outstanding Service to the Industry

With the Association on a sounder financial basis than it has been for a number of years, and with the assurance that the Association will close the year with a moderate reserve in the bank, your officers have been able to carry forward the work of the Association with much more confidence as to the results to be secured from service. In other words, the morale of the entire Association organization has been on a much higher basis, and the results achieved during the year have proven the wisdom, if proof was needed, of making it possible for the secretary and his assistants to carry on their work without the dread of a deficit of an uncertain amount hanging over them, or the fear that even with special appeals that it might be impossible to secure the funds necessary to meet the accepted budget.

The activities of the Association have covered such a wide field that it will not be possible to refer but to a few of the more outstanding forms of service and results achieved.

The Association Initiates Important Activities

The articles of organization of the Association indicates its function as that of promoting, protecting and perpetuating the industry. Living up to the requirements of this statement means covering a wide field of activity, watching keenly at all times for the things which may help or harm the industry. Possibly one of the very important fields of work of the Association is to so watch every phase of our national life and our international relations that the industry may be warned when there are breakers ahead and members of the Association so influenced that the problem will be taken up and met effectively directly from the Association or indirectly through outside agencies.

Interesting examples of the importance of this particular service of the Association are the formation of the special committees on the perpetuation of the paper and pulp industry and the import committee of the pulp and paper industry. Your secretary, through annual reports and talks before affiliated associations and with manufacturers, had emphasized constantly, during 1922 and 1923, the necessity for better knowledge of conditions in foreign countries and for watching the careless and often wrong importations of pulp and paper. In the printed annual reports of the secretary-treasurer for 1923 and 1924, particularly, these matters were presented for consideration.

In many ways it is unimportant as to what agency takes hold aggressively of problems as they come up in the industry, and often there may be conditions which make it more advisable to have the problems which the Association has been keeping before the industry for years taken hold of by committees formed separately and outside of the Association or even by agencies outside of the industry, such as the National Industrial Conference Board or the Chamber of Commerce of the United States. The point is to get the work done when it needs to be done, economically, expeditiously and effectively. However, with the Association on the reorganized basis, with an Executive Committee made up of the leading men of the industry, it should be increasingly less necessary for important problems to be taken hold of by agencies outside of the Association. If the Association is not in a position to meet every emergency with which the industry may be faced, then something is wrong with the Association, and drastic steps should be taken to correct the conditions, and the Association put into condition where it can do all the work which is now accepted as its field of activity and its service to the industry.

Statistics

Since taking up the production of the Monthly Statistical Summary of the Paper Industry, as this work was laid down by the Federal Trade Commission in the summer of 1922, the reports have been greatly improved, and these statistics are of much greater value to the manufacturers of paper than when issued by the Government, partly because they are gotten out more promptly and partly because they have been modified to meet the needs of the manufacturers.

The Association has been assisted in this work in a very effective way during the past year by the affiliated associations. These associations are turning over to the American Paper and Pulp Association monthly the statistics secured in

Picture taken at the Forty-eighth Annual Banquet of the American Paper and Pulp Association, February 5, 1925, at the Waldorf-Astoria Hotel, New York City

their different groups, and these are then made a part of the monthly composite put out by the Association.

In the spring of 1924, the Association was requested by the Converting Paper Mills Association to get weekly statistics on book paper. A number of the larger book mills, not members of the Converting Paper Mills Association, appreciating the value of these weekly statistics, are now contributing their statistics, with the result that a larger tonnage of book paper is being covered by the weekly statistical report than ever before in the history of the book paper industry.

The Association is developing statistics for several of the smaller associations which do not have paid secretaries of their own. The result of its experience during the past two years in statistical work would seem to indicate that the Association is in a position to give increasingly effective and economical service to the entire industry along statistical lines.

Information

Although the Information Service of the Association was discontinued in the early spring of 1924, the cumulative effects of the work of this service are being felt constantly. The Association receives almost daily inquiries from its members, from other national trade associations, chambers of commerce, banks and business houses, which it is able to answer effectively, and to the advantage of the paper industry.

So many inquiries came to the Association during the fall of 1924 from other national trade associations that in the early winter a personal letter was sent to the secretaries of some hundred of the leading national trade associations, pointing out the fact that paper is one of the most widely used commodities in all the industries of the country, and suggesting that the Association is in a position to give accurate information as to the different grades of paper, how and where manufactured, etc. These letters have brought in some exceedingly interesting and valuable material to the Association, and has given us opportunity to give accurate and worthwhile information to other industries and to pass on to members numerous trade inquiries. There is no question but what the paper industry will profit materially by having not only the other industries but banks and the public generally conversant with the fact that there is an agency ready to give accurate and helpful information at any time as to paper in all of its phases and relations.

These increasing demands for information from members and from the outside made such a demand upon the Association that a thoroughly trained young woman was brought into the Association in November, 1924, as reference clerk. This young woman is not only engaged in developing information but is putting into operation a more effective library filing system than the Association has ever had in the past.

As a matter of economy, the Monthly Bulletin which the Association published for some four years was discontinued in the spring of 1924. This Bulletin was of such a character that it did not conflict in any way with the trade journals serving the industry, and was, in fact, a valuable medium in taking information and the work of the Association to its membership. It was distributed among nearly a hundred banks in the country and was serving the industry in a very helpful way. It is believed that it would be advantageous to again publish a Monthly Bulletin. The printing of such a Bulletin would cut down the number of communications from the Association to its membership and would be of particular value in increasing the effectiveness of the service of information by the Association.

Representing the Industry

As stated in the leaflet which was prepared and sent to the members as a statement of the forms of service given to the Association, the paper industry voices its needs and its activities through the Association, thereby enabling the industry to speak effectively as a unit at Washington and at the several state capitols. The work of the Association makes for increasing harmony of action with other great industries and the public, as it represents the entire industry in its larger general problems, such as tariff, legislation, taxation, simplification, forest conservation, etc.

It would be difficult to express more effectively the work which the Association is doing in representing the industry in all of its contacts, but particularly with the National Industrial Conference Board, the Chamber of Commerce of the United States, other national trade associations, the banks, financial papers, etc.

Whether it is a matter of meeting the demands made for increased tariff rates on raw materials used by the industry, such as casein, china clay, etc., or getting unified opinion and action in such legislation as that proposed recently in Pennsylvania for the taxing of pressure vessels, the Association stands ready at any moment to represent its membership at any time in fighting for helpful and opposing harmful regulations or legislation.

These are but a few of the outstanding forms of service given to the industry by the Association.

The brief discussion of these activities should indicate fully the need for increasingly effective organized action and constant watchfulness on the part of the Association.

Committee Activities

As indicated in the report of the Secretary made last year, the Association adopted the policy in 1922 of doing away with standing committees, believing that special committees for special pieces of work are much more satisfactory in all of the work of the Association.

The Advisory Committee from the paper industry for the Department of Commerce was enlarged during the past year, and in December last held a meeting at the Department of Commerce in Washington, which was of interest and help not only to the members of the committee but to the industry as a whole. Secretary Hoover met the committee for a short time and the committee then spent several hours with the chief of the Bureau of Foreign and Domestic Commerce and the chief of the Paper Division. So much of interest came out of this meeting that a further meeting of the committee has just been held here in New York in connection with these annual meetings to perfect a program of work for the coming year.

A similar committee, made up largely of technical men, of which Mr. S. L. Wilson, of the American Writing Paper Company is chairman, has been active in connection with the work of the Bureau of Standards. This committee met at the Bureau of Standards last summer and has just held a second meeting here in New York.

The Executive Committee of the Association, made up of a group of some of the most representative manufacturers of the industry, which has met this week in New York, has authorized the appointment of a special Tariff Committee and a special Committee on Membership. These committees will be faced during the coming year with work of great importance to the Association and the industry.

The Woodlands Section

The Woodlands Section of the Association was organized in 1920 to bring together both executives and men in charge of woodlands departments for the purpose of increasing the efficiency of woods operations in the industry. The section, immediately after its organization, developed the first accurate statistics ever put out by the industry on pulpwood. These pulpwood statistics have been and are of increasing value, not only to the mills owning timberland, but to the entire industry, as they tell the story of the raw material situation.

In the financial reorganization of the Association last spring, and in meeting the need for economy, the Woodlands Section was authorized to go ahead, but without funds Mr. Porter, assistant secretary of the Association, who has been secretary of the Woodlands Section since its beginning, has been able to keep the Woodlands Section going in skeleton form and to continue pulpwood statistics. The section has held an unusually worth-while meeting here this week and we are confident that the section has a very definite service to perform for the industry. It should be given sufficient funds to do the work which has been outlined for it.

Income Tax Activities

In the report of your Secretary for 1922, 1923 and 1924, the necessity of aggressive service to the industry along income tax lines was emphasized. In discussing this need in the past your Secretary has urged the necessity of an income tax

expert. This suggestion was made because of the knowledge of what other industries and other national associations are doing in meeting their income tax problems.

Conditions, with which you are familiar, made it impossible for the Association to put on an income tax expert. Therefore, the Cost Association of the Paper Industry was urged to take up income tax work as a phase of its service. During the past year Mr. Burke of the Cost Association has been giving a great deal of time to income tax activities, and results have justified fully the efforts made. The Cost Association should be supported generously by the industry, not only for the service which it may give along income tax lines, but for the help which it is giving in emphasizing the necessity for satisfactory cost work in the industry.

The Year Ahead

In last year's report, in discussing "next year" it was stated that "the Secretary counts the past year and the year ahead better years, as there comes greater opportunity for service, and as he feels that the Association has made its work amount to something in the upbuilding of the industry." There has been a greater opportunity for service to the industry during the past year than in any year in the history of the Association.

Your Secretary has been with the Association long enough now so that he feels himself a definite part of it, and he has come to the time when it is easy to sense the needs of the industry and the association and meet these needs with some hope of beneficial results. There is great opportunity for service that will result in protecting, promoting and perpetuating the industry, but only with your continued interest and help can this service be given as you want it given.

Last year considerable space was taken in the Secretary's report in describing the splendid work done by the Special Committee on Finance and on Association Activities. The Special Committee on Association Activities, of which Mr. Norman W. Wilson was chairman, presented a report last year which embodied suggestions for improvement. This report was accepted by the Association and every effort this past year has been expended in meeting the recommendations of this particular report. The greatest improvement in the work of the Association which has come out of the recommendations of this special committee has been the change in the form of the governing body. The Executive Committee, which is the governing body, is now made up of three elected officers and five others elected at the same time and in the same place as the officers. The past year has proven that a governing body made up of a small group of men can be gotten together effectively and can act promptly upon the Association's problems.

The fundamental need for the coming year, and this need has been expressed in past years, is for better personal contact between the working forces of the Association and its membership. Five years of effort on the part of your present Secretary to develop more direct service has brought better acquaintanceship and better contact. This contact should be carried still further, for only as there is a real working contact between the staff of the Association and the manufacturers can the Association know accurately the needs of the industry and meet these needs as you want them met.

The luncheons held in different paper making sections in past years have proven to be of very definite help in making the work of the Association better known and in getting acquainted. These luncheons are less expensive to the Association than it would be for the Secretary to spend sufficient time in any given section to meet the executives who would attend a luncheon in a group. It is planned to continue these luncheons during the coming spring in several of the different paper making sections.

It has been a real privilege for the staff of the Association to work with President Stokes again the second year of his administration. Few of the members of the Association appreciate the time and thought demanded of the officers of the Association. The smaller size of the governing body of the Association has made it possible for this group to get together more easily and this has resulted in much greater interest on the part of members of the Executive Committee in the work of the Association than was possible under the former conditions, where the governing body was a very large and a much-scattered group. It is believed that the Executive Committee will find it possible to get into continuously more effective contact with the work of the Association. This will make it possible for the Association to profit in an increasing way from the help of these representative men who represent all groups of the industry.

This Association is an organized effort on the part of the paper manufacturers to do certain things for the industry as a group, and like all organizations of men, the Association is exactly what the members make it. Your officers and the staff of the Association can but assist in making the organization what you want it to be. How much the Association will mean to the industry will depend largely upon the way in which you meet not only the Secretary, but your President and your Executive Committee in the work which they are trying to do for you.

The Association has had a long and honorable career and the continuity of its existence evidences the need of the organization and the fact that organized effort in the form of associations has become a recognized value to the industry. The Association will soon hold its fiftieth annual meeting. There are few older national trade associations in the United States representing an entire industry, and it is believed that some form of special celebration of our fiftieth anniversary will not only be of interest and help to the industry, but will be of very definite assistance to the furtherance of the right kind of trade association work in the United States.

Hummel Talks on Progress of South

Following the Secretary-Treasurer's report, President Stokes called on J. P. Hummel, of the Hummel-Ross Fibre Corp., Hopewell, Va., to talk on conditions in the pulp industry in the South. Mr. Hummel spoke in a very interesting manner on the tremendous growth of the pulp business not only in the Virginia district of the South but also in the far South. He stated that there were indications of an ample supply of pulp wood in the South for 1925.

"We are offered pulp wood by the farmers in the South at a lower cost than we can harvest it from our own lands," he said, "and the result is that we buy a great deal of our supply from the land-owners. In Virginia in order to cut pulp wood we must own the lands, which obviously necessitates the investment of a great amount of capital, making it an expensive undertaking. We consequently make contracts with the farmers to be supplied wood over the year 'at their convenience.' To anyone familiar with the South this can be readily appreciated; sometimes we wait until very late in the year before receiving the wood contracted for.

"There is much competition in timber in Virginia from the firewood people, excelsior manufacturers and from concerns cutting mine props. However, there is an abundance of pulp wood in the South, particularly in the Far South. The fibre of the southern pine is longer than that of the northern spruce, about 10 per cent longer. Farther South, the wood is heavily charged with rosin, and processes are being perfected for extracting the resinous matter. Wood, freed from rosin, yields a most excellent pulp, from which a most excellent Kraft paper can be made."

Mr. Hummel referred to the foreign competition which domestic producers of Kraft pulp have to contend. He stated that conditions were reaching a point where manufacturers of Kraft pulp in the United States were obliged to put in machines for making Kraft paper since there was scarcely any market for their pulp, pointing out that while 325,000 tons of Kraft pulp were produced in this country in 1924, only 35,000 tons were sold in the open market. He stated that the output of Kraft pulp in Sweden last year totaled 300,000 tons, of which the United States imported and consumed 220,000 tons, while Canada shipped us an additional 140,000 tons. He estimated the Kraft pulp production of Sweden for 1925 at 320,00 tons, of which total he said 160,000 tons already had been contracted for in the United States.

Seaman on the Board Industry

George M. Seaman, of the Seaman Paper Co., Chicago and New York, and representing the boxboard group of the industry, then spoke on conditions in the board industry. Mr. Seaman started by saying that in 1914 board comprised 20 per cent of the paper industry's entire output, while in 1919

it comprised 33⅓ per cent, giving these figures as indicating the growth of board production. He stated that the board mills of the country are equipped today to turn out 14,000 tons of boxboard daily.

"The board industry has advanced in every way," he said. "The industry, in fact, has had a mushroom growth, as shown by figures compiled for the year 1921, indicating the industry was equipped no less than 50 per cent in excess of the market demand at that time. Board is displacing wood, and is being put to a great variety of new uses."

He told of the organizing of the Boxboard Association, comprising 80 per cent of the tonnage of the country, and of the excellent work that organization is doing. He also referred to the efforts of Canadian manufacturers to capture the American markets for paper and board, saying that they had gobbled up the newsprint market and were now endeavoring to control the markets for book, wrapping, specialty and other papers.

McKernon on Fine Paper Conditions

Charles McKernon, president of the B. D. Rising Paper Co., Housatonic, Mass., speaking on behalf of the fine paper manufacturers, said that the fine paper industry was enjoying market activity warranting production on about an 80 per cent capacity basis. He touched on the high prices of rags at present, saying that prices at the beginning of this year were 24 per cent higher than a year ago, 37 per cent above the levels prevailing two years ago, and 87 per cent up from the prices of three years ago. He stated that merchandising of fine papers presented a problem today because of the small lots in which consumers and jobbers ordered. "It's getting so bad that soon the merchant will want to buy a ream at a time from the mill," he remarked.

Mr. McKernon dwelt for sometime on the potential overcapacity of the fine paper mills, and also elaborated on the large increase in cost of production other than caused by the higher prices of raw materials, and on the heavy cost of distribution.

Coarse Paper Field

Milton E. Marcuse, president of the Bedford Pulp and Paper Co., Inc., Richmond, Va., spoke on conditions in the coarse paper field. He said that of the 193 coarse paper mills in the United States, 17 were located in the South, where his company's plants are. He cited figures showing that 1,215,000 tons of coarse paper were shipped from mills and consumed in 1924, while 23,000 tons were imported and 13,000 tons exported. He said that it was gratifying to manufacturers to have learned that the per capita consumption of coarse paper in the United States had increased from 18.1 pounds ten years ago, with a population of 97,000,000 people, to 22.4 pounds in 1924 with an estimated population of 110,000,000 people.

The following resolutions were then read to the meeting and unanimously adopted:

Resolutions

Forestry

WHEREAS, the paper industry of the United States is a wood using industry with growing dependence on the productive capacity of American timberlands; and

WHEREAS, this industry, through the American Paper and Pulp Association, is directly interested in State and Federal activities seeking to protect timberlands from damage by fire, insects and fungi, and to increase their productivity by the application of sustained yield, management; and

WHEREAS, the association believes in effective co-operation with State, Federal and private agencies working along these lines; and

WHEREAS, there is now on the statute books of the Federal Government a law providing for a definite Federal fiscal and forest land policy looking toward the development of national forests, increased nation-wide forest fire prevention, and the production of adequate timber crops,

BE IT THEREFORE RESOLVED that the American Paper and Pulp Association in convention assembled hereby records its approval of the program and provisions of the Clarke-McNary Law, and urges all possible co-operation between the Federal Government, and the States and private interests involved in the provisions of this law.

Passports

WHEREAS, the present high fees for issuing and visaing passports are a burden upon the international travel necessary to commerce; and

WHEREAS, the police control of passports, necessary and appropriate in time of war, exists now as an interference of international commerce; and

WHEREAS, the paper industry is seeking to increase its foreign trade, thus necessitating foreign travel by its representatives,

IT IS THEREFORE RESOLVED, that the American Paper and Pulp Association representing the paper industry of the United States, approves the efforts now being made to induce the American Government to reduce its fees for passports and visas to a reasonable charge for the service performed; and

IT IS FURTHER RESOLVED, that in the opinion of the association it would be highly desirable for the Government of the United States to enter into agreements with foreign Governments for reciprocal discontinuance of visa requirements.

Increased Salaries for Postal Employees

WHEREAS, commerce and industry of the United States is vitally affected by the condition of the Federal Postal Service; and

WHEREAS, the present salaries of a large proportion of the postal employes are inadequate, and

WHEREAS, the President of the United States has seen fit to veto recent proposed legislation affecting an increase in the salaries of postal employes on the ground of insufficient provision for the necessary revenue,

BE IT THEREFORE RESOLVED, that the association in general favors an increase in salary for postal employes, providing adequate funds are available and it therefore endorses the action of the President of the United States in this matter.

Muscle Shoals

WHEREAS, the Government of the United States has expended large sums of money in preliminary development of power and other commercial plants at Muscle Shoals; and

WHEREAS, it is generally believed that the completion of these developments would be in the best interest of the people of the United States;

BE IT THEREFORE RESOLVED, that this association voices its approbation of plans to completely develop the power and commercial facilities of Muscle Shoals by Government lease, but not by Government operation.

Railroad Labor Board

WHEREAS, the Railroad Labor Board has been effective in its service to the country in matters of labor and effective rail transportations; and

WHEREAS, there is proposed legislation before the Federal Government known as the Howell-Barclay Bill seeking to discontinue the Railway Labor Board;

BE IT THEREFORE RESOLVED, that the American Paper and Pulp Association favors the continuance of the Railroad Labor Board as an effective instrument of the Government and opposes the Howell-Barclay Bill.

Child Labor

WHEREAS, there is before the Congress of the United States proposed legislation which would affect an amendment to the Constitution of the United States in relation to the employment of child labor; and

WHEREAS, it is generally felt that the provisions of the proposed law inadequately protect the health and welfare of the youth of the country and the development of legitimate business;

BE IT THEREFORE RESOLVED, that the association opposes the proposed 20th Amendment to the Constitution known as the Child Labor Law.

Income Tax Publicity

WHEREAS, the provisions of the Federal Revenue Law as to the individual income tax laws have attracted widespread publicity; and

WHEREAS, it is generally felt that this publicity is not in the best interest of sound business and finance;

BE IT THEREFORE RESOLVED, that the association heartily favors the repeal of the Income Tax Publicity Provision of the Revenue Law.

WHEREAS, in the wisdom of Almighty God leaders of the industry have been taken from among our Councils during the past year;

BE IT THEREFORE RESOLVED, that the association voices its sorrow at their loss, and its appreciation of their work for the industry:

James E. Mariner, Brown Corporation.
Olaf Bach-Wiig, Wausau Sulphate Fibre Co.
George E. Bardeen, Allied Paper Mills.
Louis H. Buckley, U. S. Envelope Co.
Celestine C. Burns, St. Regis Paper Co.
G. D. Garabrant, Bulkley, Dunton & Co.
Edwin Richard Rehead, The Victoria Paper Mills Co.
Willis H. Senburn, Strathmore Paper Co.
M. S. Southworth, Southworth Paper Co.
James B. Thayer, U. S. Envelope Co.
George W. Wheelwright, Geo. W. Wheelright Paper Co.
H. L. Newell, Miamisburg Paper Co.
AND OTHERS.

Appreciation of Dr. Baker

WHEREAS, the Trade Association work can be successful for any industry only in proportion to its whole-hearted cooperative support by the industry and aggressive, broad-minded, fearless, and painstaking representation by its executive officers; and

WHEREAS, the American Paper and Pulp Association is indeed fortunate in having as its secretary, an able executive who for five years has given loyal constructive service to the association in its work to protect, perpetuate and upbuild the paper industry of the United States;

BE IT THEREFORE RESOLVED, that the association expresses its confidence in his able guidance and its appreciation of his services in its behalf.

Appreciation of Henry Stokes

WHEREAS, the Paper Industry of the United States realizes the necessity of a strong central organization to represent it effectively; and

WHEREAS, the American Paper and Pulp Association as the central organization of the paper industry has been fortunate in having had as its leaders, men of broad vision and unselfish purpose; and

WHEREAS, through the efforts of President Henry W. Stokes, ably seconded by strong special finance committee and the Association's Executive Officers, the association has completely reorganized its basis of membership and finance, and now stands on a firm foundation meriting the support of the entire industry;

BE IT THEREFORE RESOLVED, that the association, in convention assembled, hereby gratefully acknowledges the untiring devotion and constructive efforts of President Stokes, in behalf of the industry in the upbuilding of the association and the development of its work on a high plane of service to the industry, to affiliated associations and to its individual mill members.

Then came what was regarded as the most important development at the convention. Charles A. Gordon, of the Oxford Paper Co., New York City, as a member of the association committee appointed to investigate the proposed embargo on exports of pulp wood from Canada to the United States, arose and stated that in view of the resolution passed by the Canadian Pulp and Paper Association in annual convention in Montreal a few days ago recommending that an export tax, graduated over a period of years, be placed on pulp wood exports to the United States, he desired to put before the convention a resolution. He read the following resolution, which was unanimously adopted by the meeting:

Canadian Export Tax

WHEREAS, the Canadian Pulp and Paper Association at its annual meeting held in Montreal on January 30, 1925, passed a resolution in favor of the imposition of a graduated export tax increasing annually upon logs and pulpwood exported from freehold lands in Canada; and

WHEREAS, although such action is urged as a measure for conserving the forests of Canada, the amount of pulpwood annually exported to the United States is such an insignificant portion of the total annual depletion of timber in Canada, that it bears no relation whatsoever to a conservation measure; and

WHEREAS, the imposition of an embargo or an export tax, which is intended to accomplish the same results, would render useless large investments made by American manufacturers in good faith in the purchase and development of freehold lands in Canada; and

WHEREAS, the imposition of such embargo or export tax, while resulting in no material benefit to Canada, would adversely affect the paper industry in this country, increasing the costs of all kinds of pulp and paper and paper products to the ultimate consumer; and

WHEREAS, it is the opinion of this association that such action by the Canadian Pulp and Paper Association is not for the purpose of conserving Canadian pulpwood but its real intent is to enable the Canadian manufacturers to gain further control of our paper market;

BE IT THEREFORE RESOLVED, that the American Paper and Pulp Association, meeting in convention today, hereby enters its formal protest against the enactment of such an embargo or export tax and urges its members to use their best efforts with their representatives in Washington to have our government take such action as may be necessary to protect the interests of the pulp and paper industry in the United States.

Remarks and Addresses

The Nominating Committee then made its report, and the election of officers took place. Following the election, President Stokes called President-elect Wilson to the platform, and in a few words, Mr. Wilson asked for the whole-hearted support and co-operation of the association members and officials during his tenure of office as head of the organization. Mr. Wilson was given rousing applause and it was plainly evident his election was a very popular one.

John C. Howell, of the Brookmire Economic Service, addressed the meeting on the subject of "Statistics in Trade Association Work," pointing out the value of statistics to the manufacturer and business man and emphasizing how helpful statistics, when properly used, could be in guiding business men.

R. B. Mitchell, president of the Harris Automatic Press Co., told of the work and purpose of the Lithographic Technical Foundation in training workers for the lithographing and printing trades, and asked the members of the American Paper and Pulp Association to lend their support to the foundation.

R. D. Bertschy, president of the American Envelope Co., addressed the meeting on the matter of proposed plans in Washington to do away, in part, with the stamped envelope, and requested that the association give its assistance in furthering the work being done in Washington with a view of preventing this from coming to pass.

Before closing the meeting, President Stokes thanked the members of the association for their co-operation during his two years as head of the organization. He paid tribute to Dr. Baker and the staff of the association, and stated that his association and work with them had been most pleasant.

Annual Banquet

The annual banquet of the American Paper and Pulp Association in the grand ballroom of the Waldorf-Astoria Hotel, Thursday evening, February 5, was attended by approximately 700 members and guests, who comfortably filled the spacious dining hall. During the serving of dinner, a string orchestra played oldtime and popular songs in which the diners joined in singing. The ballroom was tastefully decorated with American flags, while behind the speakers' table

were state banners of New Hampshire and New Jersey in honor of the speakers of the evening, and also a flag bearing the state seal of New York.

Two surprises were sprung by President Stokes, who acted as toastmaster, after dinner had been served. When he first arose, President Stokes stated that there was present a man long endeared to the paper industry and long affiliated with it in an indirect way, who had been seriously ill for four years and who "by the Grace of God" had been spared to again attend an annual banquet of the American Paper and Pulp Association. Mr. Stokes then called for a rising greeting to Judge Charles F. Moore, who was seated at the speakers' table. The gathering applauded loudly and for several minutes. Judge Moore, although unable to rise from his chair, responded with a few sentences with the same wit and smoothness of speech for which he has long been renowned to paper trade association audiences, thanking the gathering for the reception accorded him and saying how grateful he was to be present.

President Stokes' next surprise was in bringing up the resolution opposing the proposed tax or embargo on pulp wood exports from Canada passed at the business session in the morning. He said that he could readily see that a far greater number of members of the association was present at the dinner than at the business meeting, and that he wanted everyone in favor of the resolution and prepared to stand behind it to rise so that the Canadians seeking to prohibit the export of pulp wood would know that the American paper industry was as one in opposing any such movement. Virtually everyone in the room thereupon rose, amid loud handclapping.

President Stokes then introduced the principal speaker of the evening, United States Senator George H. Moses of New Hampshire.

The Senator threatened reprisals should Canada impose a tax or an embargo on pulp wood exports to the United States, and warned that if such legislation was enacted in the Dominion it might lead to a "disastrous trade war" between the two countries. He devoted his entire speech to the subject.

"There cannot at any stage of the proceedings that produced the present crisis have been anything but a selfish purpose to dominate the American market," said Senator Moses. "In the face of that stands the dominant American policy to hold this market, the best in the world, and extend it to the foreign markets on a basis of honest competition.

"If it can be there are those of our neighbors who are forgetful of the century of peaceful and amicable relations that has prevailed, surely no one here will forget the pride with which the United States hailed the negotiation of the Rush-Bagot Treaty, and no one here, looking back on the century or more of unruffled peace, can now fail to remember that the first gesture in what may prove a disastrous trade war was made not by Columbia but by the Lady of the Snows.

"We are speaking now as Americans, as business men, as friends of peace, when we try to point out that the course on which she seems to be embarking, is urged by a group that forms a noisy, aggressive and insolent minority motivated by self-interest. It cannot be our neighbor will give heed to such a cry and will attempt to do its urging against a great-hearted friend who wishes none but good to Canada.

"We cannot forget that within our generation a great golden stream of American capital has gone into the northlands to help build up its communities and that many of our people have gone there. But if the co-operation we have extended seems now about to be repulsed, let it be known of all men it is not we who have taken the aggressive part and let it be known that if it comes to us we are not unready.

"Our tariff laws give us ample protection against discriminating and unfair competition. Do not forget that there happens to be in the United States several thousand miles of Canadian railroads on which we may lay regulation, if not embargo. Do not forget that we control many of the raw materials that are necessities of life and industry in Canada, especially in the paper industry. An embargo on coal or sulphur, each of which lies within a single stroke of the pen of the President of the United States, would be sufficient protection. Those who speak for you at Washington will neither be dumb nor inactive in the event that the menace of tonight shall become the reality of tomorrow."

The next speaker was Judge Harold B. Wells, of Bordentown, N. J., a humorist of no mean ability. Judge Wells expounded a brand of philosophy which was highly amusing, interspersing his remarks by numerous witty stories and sayings. In a rapid-fire talk he urged his hearers to be good fellows, always wear a smile and to go through life endeavoring to do good.

The third and last speaker was the Rev. Dr. Nehemiah Boynton, of New York, chaplain of the American Paper and Pulp Association. In his usual interesting and amusing manner, Dr. Boynton discoursed at length on how business men should be something e'se than good business men. He told several witty stories during the course of his remarks, and held the close attention of his audience throughout his speech.

Dr. Boynton pronounced benediction.

Divisional Meetings

U. S. Pulp Producers' Association

The United States Pulp Producers' Association at its annual meeting on February 3 in the Waldorf-Astoria Hotel, New York, voted to carry on with greater efficiency its present operating efficiencies work, and its statistical service, and heard an illuminating report on the Scandinavian sulphate pulp conditions by Elias Olsen. The following officers were elected:

President, Herman Elsas, of the Continental Bag & Paper Mills Corporation, New York.

Eastern vice-President, J. P. Hummel, of the Hummel-Ross Fibre Corporation, Hopewell, Va.

Western vice-president, D. Clark Everest, of the Marathon Paper Mills, Rothschild, Wis..

Secretary-treasurer, O. M. Porter, New York.

Glazed and Fancy Paper Manufacturers' Association

The following officers were elected at the annual meeting of the Glazed and Fancy Paper Manufacturers' Association in the Waldorf-Astoria Hotel, New York, on February 4:

President, A. H. Shuart, of the Springfield Glazed Paper Company, Springfield, Mass.

Vice-president, A. S. Guggenheim, of the United Manufacturing Company.

Treasurer, G. Frank Merriam, of the Holyoke Card & Paper Company.

Secretary, O. M. Porter.

Waxed Paper Manufacturers' Association

The American Waxed Paper Manufacturers' Association decided at its annual meeting on February 3 at the Waldorf-Astoria Hotel, New York, to continue the work of research into new uses of waxed paper, and found that the advertising campaign now under way is having excellent results. The association will establish an equipment and supply exchange for the service of its members. Officers elected were:

President, W. L. Carter, of the Nashua Gummed and Coated Paper Company, Nashua, N. H.

Western vice-president, C. H. Donnelley, of the Central Waxed Paper Company, Chicago.

Eastern vice-president, A. H. Havemeyer, of the Package Paper & Supply Company, Springfield, Mass.

Secretary, O. M. Porter.

Writing Paper Manufacturers' Association

All officers of the Writing Paper Manufacturers' Association were re-elected at the annual meeting of that organization in the Waldorf-Astoria Hotel, on February 4. Philip Weston, of the Byron Weston Company, Dalton, Mass., was elected president; W. M. Crane, Jr., of Crane & Co., Inc., Dalton, Mass., first vice-president; A. H. Nevius, of the Miami Paper Company, West Carrollton, O., second vice-president, and E. H. Naylor, secretary and treasurer. The meeting was well attended, and matters of special interest to the fine paper manufacturers were discussed.

Tissue Paper Manufacturers' Association

Members of the Tissue Paper Manufacturers' Association held their annual meeting at the Waldorf-Astoria Hotel, New York, on February 3, with a good attendance. Officers for

the ensuing year were re-elected as follows: President, F. W. Hoefler, of the Oswego River Paper Mills, Phoenix, N. Y.; vice-presidents, H. W. Brightman, of the Northern Paper Mills, Green Bay, Wis., and J. B. Rieg, of the Erving Paper Mills, Erving, Mass., and secretary-treasurer, E. H. Naylor.

Cover Paper Manufacturers Association

The annual meeting of the Cover Paper Manufacturers' Association was held on February 3 at the Waldorf-Astoria Hotel, New York. Subjects of particular interest to those in attendance were discussed at length. The following officers were re-elected for the ensuing year:

President, D. L. Quirk, Jr., of the Peninsular Paper Company, Ypsilanti, Mich.

Vice-president, Col. B. A. Franklin, of the Strathmore Paper Company, Mittineague, Mass.

Secretary-treasurer, E. H. Naylor.

Import Committee Meeting

A meeting of the Import Committee of the American Paper Industry was held in the Waldorf-Astoria Hotel, New York, on February 3, at which routine problems were discussed, such as the location of offices, and progress of the committee's work. Warren B. Bullock is now manager of the committee, and Henry A. Wise has been retained as counsel for the committee. Many investigations were reported to be under way, looking toward the stopping of dumping, proper classification of paper, including writing, printing, book, wrapping and specialty papers. All of the work has been done in close co-operation with the customs service officials who have welcomed the assistance of the committee in settling puzzling problems.

The Import Committee was formed during the past year as the result of action taken at the 1924 convention of the American Paper and Pulp Association as requested by the Salesmen's Association. Since its organization the committee has done aggressive work toward checking unfair foreign importations of paper into the United States.

Waste Merchants' Dinner

One of the events of Paper Week in New York was the annual dinner of the Waste Merchants' Association of New York, whose membership comprises practically all of the concerns in Greater New York dealing in papermakers' supplies, which was given on the evening of February 3 in the East Ballroom of the Hotel Commodore. Close to 300 members as their guests, including an unusually large percentage of mill men, were present.

During the serving of dinner an orchestra kept things lively by rendering popular airs, while a quartet sang a number of selections. After dinner an excellent vaudeville show was put on, the performance being on a stage erected in the center of the dining room, with the tables so placed that everyone had an advantageous view of the stage. Dancers, songsters and chorus girls appeared, the entertainment lasting well onto two hours.

The committee in charge of the dinner consisted of Walter H. Martens, chairman, Alfred J. Moran and Charles Passanante. A journal which contained the menu, entertainment program, a short historical sketch of the association and advertisements of the members was issued as a souvenir.

Death of James E. Mariner

A sad happening during Paper Week in New York was the sudden death of James E. Mariner, who was in charge of the sulphite pulp sales division of the Brown Company, Berlin, N. H. Mr. Mariner arrived in New York Sunday evening to attend the annual convention of the American Paper and Pulp Association, and apparently was in the best of health. On Monday morning no answer was received to calls for his room in the Waldorf-Astoria Hotel, and Monday night the door was forced open by the hotel authorities and Mr. Mariner was found dead in bed.

Mr. Mariner became associated with the Brown Company in 1893 at which time it was known as the Burgess Sulphite Pulp Company, and had been with the organization continuously until his death. He was born in Portland, Me. A widow, a son and a daughter survive.

Supply Association Keeps Open House

The Supply and Equipment Association, Inc., of the American Paper and Pulp Industry, whose headquarters are at 33 Rector street, New York, kept open house at the annual convention of the American Paper and Pulp Association in New York, February 3-5. The association had a table in the registration hall of the Waldorf-Astoria Hotel where the visiting paper men came to register for the convention, with literature, records, etc., and with A. C. Dunham, secretary of the Supply Association in charge.

The association held a directors' meeting at the Waldorf February 5 at which various matters of importance were discussed.

Salesmen's Association Meeting

Walter E. Perry, sales manager of the Chemical Paper Manufacturing Company, Holyoke, Mass., was elected president of the Salesmen's Association of the Paper Industry at the annual meeting of that organization in the Waldorf-Astoria Hotel, New York, on Tuesday, February 3. Mr. Perry succeeds J. L. Fearing, of the International Paper Company, New York.

R. C. Tilden, of the International Paper Company, New York, was elected vice-president for the New York division of the association; Carlton W. Smith, of the Miami Paper Company, West Carrollton, O., was elected vice-president for the Miami Valley division; Ray Wright, of Crane & Co., Dalton, Mass., was elected vice-president for the New England division, and J. H. Coy, of the Flambeau Paper Company, Chicago, was elected vice-president for the Chicago division.

Secretary-Treasurer Warren B. Bullock reported a healthy growth in the association's membership during the past year, 15 new members being added. He also reported that the organization was in a good financial position, a deficit of almost $500 at the beginning of the past year having been wiped out. Secretary-Treasurer Bullock's report follows in full:

"From every standpoint, the past year of the Salesmen's Association of the Paper Industry has been a successful one. Beginning the year with a deficit of $497.58, the Association was able to wipe out the old deficit and secure sufficient income so that with no allowance for possible profit or loss on the 1925 annual banquet, the year will end with a small surplus.

"From the standpoint of membership, the actual condition shows an improvement over that at the last annual convention, though some deadwood has been taken off the books. At the beginning of the year there were 196 members on the rolls. Of these, 22 were dropped for non-payment of dues, or resigned, but 15 new members were added, making a present total of 183, a loss in figures but an actual gain in active membership.

"During the year the Chicago weekly round table conferences have gained in interest and attendance. Chicago being the center where these conferences were originated on a regular basis. New York, too, has made its Monday luncheons a weekly fixture, with occasional special programs. The Miami Valley division has held monthly meetings which have been well attended, but the New England group has evidently considered itself too widely scattered to make regular conferences possible.

"A special feature of the year was the New England outing at Stockbridge, an affair so pleasant that it has been suggested that it be made an annual pilgrimage of the salesmen of the country. There was also no fall conference at Chicago of the American Paper and Pulp Association this year, so the October meeting of the Salesmen's Association was not held as was the case in preceding years.

"The secretary attended luncheons of the Chicago, New England and Miami Valley groups during the year.

"The publication by the Association of 'Paper—An Index of Civilization,' the address given in Stockbridge, New York and Chicago by H. H. Reynolds, former president of the Association, has resulted in a considerable sale of this fine review of the paper industry. The Association still has a quantity of these booklets available at a moderate cost to all desiring them.

"The report of the secretary would not be complete without the recording of the organization of the Import Committee

of the American Paper Industry on the lines proposed by the Salesmen's Association to the American Paper and Pulp Association, as a result of the advocacy by the Salesmen's Association of the so-called 'Wise-Plan.'

"The Salesmen's Association can look upon its part in this movement as one of the most outstanding accomplishments of the Association in its entire history."

Resolutions were passed expressing the sorrow of the Association over the death of three of its members during the year, and the secretary was instructed to send copies of same to the families of the deceased members. The three whom death claimed were O. Bache-Wiig, of the Wausau Sulphate Fibre Company, Mosinee, Wis.; Joel McQueen, of the Wrenn Paper Company, Middletown, O., and James B. Thayer, of the United States Envelope Company, Springfield, Mass. George K. Gibson spoke on the character and life work of Mr. Bache-Wiig, while Fred W. Main, in a few words, extolled the virtues of Mr. Thayer.

An interesting feature of the Salesmen's Association meeting was the showing of a motion picture depicting the making of paper by original hand methods, and scenes in an up-to-date newsprint mill showing how paper is made at the rate of 1,000 feet per minute. Scenes also were shown of cutting timber in the forests for pulp wood, of the floating of the logs down streams to the paper mill, and of the preparation of the wood for pulp manufacture. This film was shown by the General Electric Company.

H. V. Kaltenborn, of the editorial staff of the Brooklyn Daily Eagle, addressed the meeting on "Current Events," touching on political and economic situations in the United States and in various foreign countries.

Banquet

The banquet of the Salesmen's Association in the Roof Garden of the Waldorf Tuesday evening, February 10, was the best attended in the history of the organization. During the serving of dinner the "Right Quintette," a group of colored entertainers, kept things lively with their singing, rendering of instrumental selections, and dancing.

After dinner, the retiring president of the association, J. L. Fearing arose and said:

"I congratulate you on this, the sixth annual convention of the Salesmen's Association of the Paper Industry. This is the day of distribution! During the great war, the big word was production! The problems of distribution now are engaging the executives of all industries, as never before. To attack such problems successfully we must have well-trained, highly-developed salesmen. How can we get such men? What have we done in the past to train and develop them and help them in their problems?

"Most salesmen in the past have been allowed to roam at large, as it were, without any advice at all, each seeking out his own salvation. This is what happened in my own case. After about two years of selling experience, I became acquainted with the one man who gave me, as I look back over the years, some real fundamental advice on salesmanship and its problems and that man was no other than John A. David, now passed to his reward. Many of those in this room remember him with affection. He was indeed a super-salesman. I recall distinctly that he emphasized two things in salesmanship: first, never be afraid to say, 'I don't know,' and second, don't talk too much.

"Haven't the executives of the paper industry and other industries trusted too much to luck in the training of their salesmen. Isn't it a fact that today they are wide awake to the importance of such training?

"Six years ago the Salesmen's Association was formed, and I think it is no exaggeration to say that it is the one organization in the United States, the sole purpose of which is to develop salesmanship in its highest form."

President Fearing then introduced the first speaker of the evening, the Rev. Dr. Henry H. Crane, of Malden, Mass.

Dr. Crane took as his subject "Business at Bat." He stated, after telling several yarns in connection with baseball which put his hearers in good humor, that problems are being solved today by the business man that for centuries were solved only by the sword. He said that we are still faced with the problem of the professional religionist, who trades on the superstitions of the people; and also with the problem of the professional politician, who, however, he stated, has already taken two strikes and who would doubtless strike out in the not distant future. He said that the world looked to the business man to bring order out of chaos, and that the greatest phenomenon of modern times is the business man. He cited the four basic principles of business which, in his estimation, were the most important of all, as follows:

(1) Business found it absolutely necessary to place its faith in the people.

(2) Business replaced the old belief that competitive methods were the only way in which to do business by the theory that co-operation was the proper way to do business.

(3) Business discovered the necessity of adopting a code of ethics.

(4) Business realized the solemn significance of service.

These four principles, Dr. Crane said, had brought the business man to the high position which he occupies today.

The second speaker was Edgar A. Guest, of Detroit, Mich., the nationally known humorist and poet, who spoke on "Home Folks." Mr. Guest confined his remarks to the recitation of a number of his human interest poems, and to telling a few humorous stories.

Following Mr. Guest, President Fearing called on the newly-elected president, Walter E. Perry, saying:

"I now turn over to Walter Perry the presidency of this association, he having been elected president at our business session this morning. I bespeak for him the same measure of loyal support and co-operation that has always been accorded to me and in token of this change in authority, I hand him the gavel."

Mr. Perry received considerable applause from the crowd of salesmen, and in a few words asked the support of the members during this administration.

Woodlands Section Meeting

The fifth annual meeting of the Woodlands Section of the American Paper and Pulp Association was held on February 4, at the Waldorf-Astoria Hotel, New York, two sessions being held, the first in the morning and the second in the afternoon. The attendance was quite large.

The following officers were elected for the ensuing year:

President, George N. Ostrander, of the Finch Pruyn Co., Glens Falls, N. Y., succeeding C. W. Hurtubis, of the Hammermill Paper Co., Erie Pa.

Vice-presidents, George W. Sisson, of the Racquette River Paper Co., Potsdam, N. Y., and H. B. Collins, of the Dill & Collins Co., Philadelphia, Pa.

Secretary, O. M. Porter.

The following were elected to compose the Executive Committee of the section: C. W. Hurtubis, of the Hammermill Paper Co., Erie, Pa.; Howard E. Beedy, of the Oxford Paper Co., New York City, and Franklin E. Bragg, of the Orono Pulp and Paper Co., Orono, Me.

At the morning session the subjects discussed were available pulp wood supplies, pulp wood logging and the use of tractors, and plans for the work of the section during 1925.

The afternoon meeting was devoted to discussions of fire prevention and suppression, utilization of hard woods, and on the growth of pulp wood.

The section gave an informal dinner in Room 115 of the Waldorf on the evening of February 4, at which Dr. C. D. Howe, of the University of Toronto, was the principal speaker on the subject of "Canadian Forestry." Dr. Howe's address appears on another page.

Congressman John D. Clarke, author of the Federal Forestry Law (Clarke-McNary Bill), was the next speaker on "Next Steps in Forest Legislation." He said, in part:

"Now that the Congress of the United States has passed the Clarke-McNary Bill providing for National Forestry Policy, the next and equally important step, is the adoption by each state of a forest policy for itself.

"I have reached the conclusion," he said, "that the United States in their forestry policies were a good deal like the June bug, the light was all behind, and that our hit or miss policy regarding our forests, as states and as a nation, was speeding us into a treeless, Chinafied United States, a calamity to us as a nation and a tragedy to our leadership in civilization itself.

"If you want a program for the several states, here it is:

"1. Ascertain the extent of its lands more suitable for reforestation than agriculture.

"2. An exact scientific determination of the kind of trees these lands will best grow in the light of that survey, and the needs of the State.

"3. Proper protection from fire and the enemies of trees.

"4. Fair tax laws that will make certain that our public-spirited citizens will not be penalized from making wood lots and idle lands grow trees.

"5. Getting going with a plan of growing and distributing seeds and trees."

E. P. R. Ross, editor of the Journal of Insurance, spoke on "Timberland Insurance," and Dr. Hugh P. Baker also spoke.

Tenth Annual Meeting of the Technical Association

THE Technical Association of the Pulp and Paper Industry held its tenth annual meeting at the Waldorf-Astoria Hotel, New York, on February 2-5, in conjunction with the annual convention of the American Paper and Pulp Association. The Technical Association gathering was exceptionally well attended this year; in fact, it was said that a larger number of the association's members was present at the meetings than at any convention in the past.

At its business meeting on February 4 the following officers were elected for the ensuing year:

President, George K. Spence, of the New York & Pennsylvania Company, Johnsonburg, Pa., succeeding H. S. Taylor.

Vice-president, E. C. Tucker, of the Chemical Paper Manufacturing Company, Holyoke, Mass., succeeding G. N. Collins.

Secretary-treasurer, W. G. MacNaughton.

Executive Committee to serve three years: R. S. Kellogg, secretary of the News Print Service Bureau, New York, and D. Clark Everest, of the Marathon Paper Mills, Rothschild, Wis.

The Executive Committee of the association held a meeting and luncheon at the Canadian Club on Monday. The Tuesday forenoon session at the Waldorf-Astoria was devoted mainly to the making of reports by the officers and the chairmen of various standing and special committees, while the afternoon session on the same day was devoted to additional committee reports and to the reading of several papers.

Sectional meetings of the association were held on Wednesday morning at which group discussions were indulged in on various subjects. The business meeting and election of officers was held Wednesday afternoon, followed by the reading of additional papers.

Report of the Secretary-Treasurer

In connection with the work of my office I beg to report as follows:

Publications

Technical Section.—In the publication of the Technical Association Section of the Paper Trade Journal, of which each member receives a subscription, our relations with the publishers and editorial staff have continued to be eminently satisfactory. During the year numerous original papers and translations of great value from foreign publications have appeared in it.

Technical Association Papers VII (1924).—About the middle of the year the proceedings of the 1924 annual meeting, together with some valuable additional material, were issued and a copy sent to each member. This number contained a translation by B. L. Kassing of Doctor Lorenz's "Colloid Studies in Rosin Sizing" and translations by W. E. Byron Baker and G. P. Genberg of three valuable articles by Dr. Peter Klason. It also carried the Bibliography of Paper Making for 1923 prepared by C. J. West and A. Papineau-Couture.

Standard Methods of Testing Materials.—Shortly after the annual meeting there was issued a companion handbook to Paper Testing Methods, on standard methods of testing materials, prepared by H. U. Kiely and her committee.

These two handbooks have had a distribution that has warranted their preparation. They are of particular value to chemists entering the industry and to mills undertaking the technical control of their manufacturing.

Index and Folders for Technical Section.—The Technical Section has continued to be pages independently of Paper Trade Journal, and for each volume of six months, C. J. West has prepared an index. This makes it possible for members to bind their section with the index. The index is available as a separate and also at a nominal cost strong folders that will accommodate the section for three months.

The demand for the indexes and folders has been small and if they are to be continuously available members must make use of them.

Manufacture of Pulp and Paper, Volume IV.—Early in the year a forward step in the work of the Joint Vocational Education Committee and its able editor, J. N. Stephenson, was marked by the publication of the fourth volume of the textbooks by McGraw-Hill Book Company.

The material for the fifth and final volume is now in the hands of the publishers and it is promised for early delivery.

While the demand for the association publications and also for the textbooks, as well as Smith's "The Action of the Beater" which we distribute, has been fairly satisfactory, I would urge that the members assist the association by giving publicity to their friends and associates regarding them.

Papermaking Reference Library.—As a suggestion for a reference library containing the minimum amount of material, I would offer the following:

Manufacture of Pulp and Paper, 5 volumes. J. N. Stephenson, editor. McGraw-Hill Book Company, publishers. $5 per volume.

Witham—Modern Pulp and Paper Making. Chemical Catalog Company, publishers. $6.

Sutermeister—Chemistry of Pulp and Paper Making. John Wiley & Sons, Inc., publishers. $6.

Kellogg—Pulpwood and Wood Pulp. McGraw-Hill Book Company, publishers. $4.

Smith—The Action of the Beater. $3.60.

Paper Testing Methods. $3.

Standard Methods of Testing Materials. $3.

Technical Association Papers, Series III to VII available. $3 per copy. Series V, VI and VII contain West's Bibliography of Paper Making.

Technical Association Section, with Index, containing Abstracts of Current Literature. Gratis to members.

Service to Members

Under the plan inaugurated two years ago a considerable number of inquiries on many subjects have been handled and it is believed that the plan has been of material value to the members who participated. Each inquiry is published in blank in the Technical Section and a mimeographed copy sent to a number of members believed to be conversant with the problem. As the replies are received a copy in blank is sent to the inquirer and when all are received a complete transcript of the inquiry and replies in blank is sent to all who have participated in the discussion.

Sections

A section of the association was formed in Dayton, known as the Miami Valley Section of the Technical Association, with Arthur B. Harvey as chairman and James J. O'Connor as secretary. A number of meetings have been held in different papermaking centers in the Miami Valley. It is hoped that during the present year several more sections will be formed which will serve to stimulate the interest of our

members and others in the scientific study of their manufacturing problems. I would urge the support of all of our members in this undertaking.

Membership

Since the last annual meeting, in spite of the usual number of resignations, the individual membership has increased from 539 to 553. The corporate membership has suffered a decrease of one firm. The membership for 1924 and 1925 is classified as follows:

	1924	1925
Members	347	356
Associate members	102	126
Juniors	90	71
Corporate	32	31
Totals	571	584

In addition there are a number of applications for membership.

In the paper industry there are several times as many eligible to membership as we have at present. There are many companies having from one to several plants without a representative in the Technical Association; there are many also where there is but a single member. I would urge the members to analyze the value which membership in the association is to them personally as well as to their employers, and present their findings to their friends and colleagues and invite them to join the association.

We have been honored this year in the election to membership of several distinguished paper mill engineers not only of United States and Canada but also of Norway and Sweden. One of them, Otto Nordstrom of Stockholm, appears on the program of our convention in collaboration with A. J. T. Taylor, of Toronto, also a distinguished engineer.

During the past year we welcomed to corporate membership the St. Regis Paper Company, Watertown, N. Y., where for a number of years we have had Charles H. Plantz as a member. In the same period we have to suffer the withdrawal of two companies by resignation.

As the work of the association is devoted, in its last analysis, to the development of the paper industry, I would urge the officers and members again to bend a part of their effort this year towards increasing the number of individual and corporate members on our books. It would be easy to demonstrate that in most cases the modest cost of membership is more than offset by the value of the direct service that goes to the members.

Meetings

In October, 1924, a fall meeting was held in Buffalo which continued two days and was devoted largely to practical manufacturing problems. On that occasion we had the honor of the attendance of R. W. Hovey, chairman of the Canadian Technical Section; Magnus Christiansen and Paul Naucke, presidents, respectively, of the Norwegian and the German technical associations, as well as over 125 of our own members. I am pleased also to record that following the fall meeting Magnus Christiansen and A. C. Skjenneberg, his chief engineer, have been elected to membership.

During the past year our association lost, through a fatal accident, one of its original members, Olai Bache-Wiig, vice and president and general manager of Wausau Sulphate Fibre Company, Mosinee, Wis., a distinguished engineer, who, although a young man, had introduced the sulphate pulp industry on this continent and had built several of the most successful sulphate pulp mills in America.

We have also to record the loss through death of a very good friend of the association, Frank B. Gilbreth, whose fame as an industrial engineer was world wide. Mr. Gilbreth, whose topic was "The One Best Way of Doing a Job" addressed the association several times and was frequently a guest at our annual dinners. Since his death his wife, Mrs. Lillian Gilbreth, who was his engineering colleague, is successfully continuing the work in which they were associated.

Tenth Anniversary

When the original members of the Technical Association review its ten years' history and accomplishments, they cannot but agree that what it has done has justified its existence. Besides its specific accomplishments in the standardization of the quality of materials and products, the preparation of five volumes of *Manufacture of Pulp and Paper*, the stimulation of vocational education, the establishment of technical control in manufacturing, and the war on waste of materials in the industry which it initiated, it has served as one of the chief stimulating influences for applied engineering in the pulp and paper industry.

It must be recognized, however, that many of the members lose a large part of the potential value of the Technical Association by failure to participate in the work of the committees. While in some cases this is due to the restrictive policy of their companies it is unfortunate that this should be so. The problems dealt with in the Association are those of general interest and there is no desire to pry into secret processes if there are any such in the industry.

While in the past ten years may be noted a marked advance generally in the industry, along the lines of greater economy and enlarged production, what has been done only emphasizes how much is still lacking. In the form of partly processed papermaking materials there are either wasted or partially utilized I would quote a statement I have recently made to the officer of one of the state departments interested particularly in the subject of stream pollution:

"I have jotted down the chief polluting elements in the mill effluent of the various types of pulp and paper mills, together with a rough figure of the quantity carried. As the volume of effluent varies widely in different mills even of the same size and making identical products, to indicate the pollutant in terms of parts per million does not serve as a comparison except as to the degree of pollution of the stream itself."

Pulp and Paper Mill Wastes in the Effluent

Old Paper Conversion.—Compounds of soda ash with sizing and oil of the printing ink, with carbon, paper filler and coating material in suspension from the deinking process.

Paper fiber from the process.

Rag Paper.—Lime and soluble material from boiling and washing of the rags.

Bleaching residues including lime sludge from the bleaching powder.

Straw.—Lime and soluble material from digestion of straw; about 20 per cent of the straw weight.

Straw fiber from the process. (This is dealt with in an article by H. B. Hommon.)

Wood.—Sometimes the entire bark from the wood removed by the wet process; more frequently only that part of the bark which is reduced to a granular form in the process of removing it.

Mechanical Pulp.—Frequently the coarse wood material produced in grinding the pulp and removed by the screens, amounting to from 1 to 5 per cent of the production.

There is also 5 to 8 per cent of the wood weight which is water soluble and passes out with the effluent in solution.

Soda Pulp.—A small amount of alkali (caustic soda) in the washing residues.

Carbon contained in the black ash from the chemical recovery process.

Lime sludge from the causticizing of the recovered soda, approximately 1,000 pounds of lime per ton of pulp produced.

Bleaching residues and lime sludge from the bleaching powder, about 125 pounds per ton of pulp.

Sulphate Pulp.—Traces of alkali in the final wash waters.

Lime sludge from the causticizing of the recovered chemicals approximately 1,000 pounds of lime per ton of pulp produced.

Sulphite Pulp.—The waste sulphite liquor from the wood pulp digestion. This waste liquor contains approximately 1,000 pounds of ligneous matter, 250 to 350 pounds of sulphur, and 300 to 500 pounds of lime, combined with the ligneous matter, per ton of pulp produced, together with a trace of sulphurous acid.

Bleaching residues including lime sludge from the bleaching powder, approximately 150 pounds per ton of pulp.

Papermaking Fiber.—In all the pulp and paper processes there is, varying with the plant efficiency, papermaking fiber carried out with the effluent. The quantity may vary from

0.5 to as much as 10 per cent or more of the mill production of pulp or paper.

In paper mills using paper filler, sizing and chemicals, a considerable percentage (50 per cent) of the quantity used may be lost in the effluent.

In the more efficiently operated pulp and paper mills every effort is being used to reduce the fiber losses to a minimum. This is done first by reducing the quantity of the effluent by reuse of the water and by passing the necessary effluent through sedimentation basins so that the fiber and filler are precipitated and returned to the process.

In the case of the lime sludge from various sources, as indicated by George K. Spence in Technical Association Papers, Series VII, many of the materials recovered are used for various purposes including that of application to acid soils.

Sulphite mills, and paper mills which deink waste papers, would have the most difficult problem if they were compelled to purify their effluents from the materials held in solution. A very few sulphite mills evaporate the waste liquors either to dryness or to a sirupy consistency (50 per cent solids) and dispose of the product as hardcore binder for foundries, as a tanning material, and for other purposes. These outlets are believed to be small and if forced to dispose of the waste liquor otherwise than in the streams it would probably have to be evaporated and burned as a fuel. It has been suggested by A. J. T. Taylor, president of the Combustion Engineering Corporation of Canada, that this could be done to best advantage with powdered coal. In this way there might be some additional fuel value over that required to evaporate the water in it."

An extended treatise might be written on the work the Association could do for the industry in the next decade or two, with the co-operation of other associations, engineering bodies and the state and federal bureaus interested in different phases of the problems.

In conclusion I would express my appreciation to the members who have so freely assisted me during the year and also in particular to the Bureau of Standards and the United States Forest Products Laboratory, both of which are doing conspicuous service for the industry.

Report of Committee on Waste

The study of many technical problems of the pulp and paper industry was in the process of development about 10 years ago, and waste elimination was one of them. A few of the most progressive pulp and paper mills were giving some attention to the saving of stock, and there were in use and being manufactured one or two stock savers of different types. The utilization of wet bark was hardly thought of and the problems allied to heat losses were given but little attention.

Shortly after the report given by the Hoover Committee on the "Elimination of Waste in Industry" the Waste Committee of the Technical Association was appointed. The Hoover Committee treated the problem of "Elimination of Waste in Industry" from a broad management viewpoint, whereas the Technical Association selected several definite material wastes to study. A number of reports were presented upon these problems and suggestions made regarding the reduction of these wastes in the paper industry.

Stock Savers or Savealls

The principal stock saver 10 years ago was manufactured by one concern or by the mills themselves, and was the revolving cone type. Several other companies were reveloping similar savealls during that period, and a number of mills used special settling tanks or old drainers to assist in reclaiming the fiber and filler. The use of both the screen savealls and settling tanks was very limited and the majority of mills lost large quantities of stock in the effluent going away from the mills. In England and any European countries, stock saving equipment was in more common use, probably because materials going into the manufacture of paper were more valuable.

The use of stock saving equipment was gradually developed and about three years ago it was given a special impetus, due to the interest of the mills in this problem stimulated by the work of the Waste Committee. The revolving cone type of saveall had been improved and efficient sedimentation tank stock savers had been installed by several pulp and paper companies in the industry. Moreover, the interest in this particular problem had sufficiently increased so that the majority of mills used savers of some type.

At the present time almost every mill realizes the importance of reclaiming the stock in its effluent and the principal study is regarding the efficiency and adaptability of stock-saving equipment. During the past three or four years decided improvements have been made in screen savealls. An efficiency of 40 to 50 per cent was averaged eight or ten years ago, while at the present time, properly functioning screen savealls will show an efficiency of approximately 85 to 90 per cent.

The settling and classifying of materials is common in many industries and several types of machines have been developed by the manufacturers of sedimentation machines, to meet the particular needs of the paper industry.

The sedimentation type of stock saver recovers 90 to 96 per cent of the material going to it, and is very satisfactory. Improved operating conditions have also been made possible by the study and development of chemical coagulent. The elimination of slime has also been assisted through chemical means.

The Sub-Committee on White Water Losses is making a detailed study of this problem, and Messrs. Rue, Wells, and Edwards of the Forest Products Laboratory are planning to give more detailed information regarding this problem. They also expect that a considerable number of pulp and paper mills will participate in the exchange of white water losses as outlined in the "Saveall Performance Code" recently developed.

Stream Pollution

Closely allied to the problem of white water losses is the question of stream pollution which a number of years ago was hardly considered by the various state and federal authorities, although a few states had some laws pertaining to stream pollution.

There was considerable agitation about three years ago in regard to the pollution of streams by pulp and paper mills, and at the present time there is considerable activity in regard to this problem.

The following states have passed legislation regarding stream pollution or have, through their health departments, supervision over this particular problem:

Connecticut, Delaware, Indiana, Maine, Maryland, Missouri, Massachusetts, Michigan, Ohio, Pennsylvania, Texas, West Virginia, Wisconsin.

Massachusetts has had, for a number of years, restrictions upon polluting certain streams, and at the present time the authorities of the states of Michigan and Ohio are making a special drive against polluting streams. In addition, the Federal Government has made some studies of this problem and it is one that is becoming increasingly important. A logical method of treating this problem is for the paper mills to provide equipment that will avoid any excessive waste, thereby making unnecessary action by the various states or federal governments.

The Dewatering and Utilization of Bark and Wood Refuse

Since the advent of the barking drum, the problem of the disposal of the wet bark has been a serious one with mills using large quantities of rough pulpwood. Because of the very wet condition of the bark, no fuel value was placed on drum barker waste. Since the early tests of the Waste Committee on Bark Pressing Equipment, much improvement has been made, so that it is now possible to prepare bark so that it contains only 50 to 55 per cent moisture. This burns in a satisfactory manner either alone or with coal or hog fuel, and each pound of bark contains approximately 3,500 B.t.u. at 50 per cent moisture.

The study of this problem in European countries is far ahead of us, and the recent information upon bark drying equipment[1] indicates that we can adopt the methods used in Scandinavian mills with very good success. Appreciable savings can doubtless be made with this type of bark drying equipment, and the adoption by American mills is only a question of time. Better results will probably be obtained by pressing all bark, whether it goes to the bark drier or to the furnace.

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[1] The Drying of Wood Refuse and Its Importance to Industry, by A. J. T. Taylor and Otto Nordston. Paper Trade Journal, Vol 80, No. 1, Jan. 1, 1925.

Heat Losses

Much attention has been paid during the past few years to heat losses in the pulp and paper industry. Probably the two greatest preventable wastes in the loss of heat occur in the production of steam and its utilization in the paper mill.

The operation of the boiler house of the average paper mill is still quite low and 10 years ago was probably under 50 per cent efficiency. During the past few years important developments have been made in furnace design and stoker equipment as well as in burning oil and powdered fuel.

The large central stations in the country are a good criterion upon which to base the effectiveness of any new combustion equipment. Recent tests at the Hell Gate station of the United Electric Light and Power Company indicate that it is possible to operate large 1,800 h.p. boilers at an efficiency of approximately 90 per cent using the latest type of underfeed stoker. In actual operation this plant is probably maintaining an operating efficiency of 84 per cent.

One of the outstanding developments in the powdered coal field is at the Lakeside Station of the Milwaukee Light and Power Company. This plant is able to maintain over extended periods of time efficiencies ranging between 82 and 85 per cent. Many oil burning plants in the industrial field show efficiencies ranging between 80 and 85 per cent.

The development in furnace design has been very important during the last three or four years and the new "Fin Hube" water cooled walls now being installed in some modern central stations not only assist in increasing the efficiency, but also appreciably reduce the cost of furnace maintenance. Marked improvements have been made both in economizers and superheaters which have both been important factors in the effective operation of boiler houses. The developments in the air preheater and the steam accumulator have also been of importance in the problems of better utilization of fuel.

The developments in the combustion field appear to indicate that there is a leaning towards the use of powdered fuel, especially the "unit system" which is combined with proper furnace design and water cooled walls and can be used on small boilers.

The cost of steam and power in the paper industry represents 30 to 40 per cent of the manufacturing or conversion cost, and consequently is a very important item. More efficient steam generation and utilization will appreciably decrease this cost.

Heat losses in the machine room of the paper mill have received more attention during the past three or four years and the conditions have been much improved due to better drying systems, heating and ventilating equipment, more effective hoods and insulated roofs, and by better building design.

The heat lost through the monitors in the form of vapor is an important preventable loss, and the vapor economizers now on the market will greatly reduce this waste. Quite recent developments in vacuum and electric drying may also be of assistance in reducing the cost of steam per ton of paper.

Conclusion

The various problems connected with the elimination of waste in the paper industry are apparently being studied with effectiveness. Much is yet to be done in regard to a design of the equipment itself, and its application to any particular mill or condition. The greatest gain is to be made by increasing the availability of recorded information in each plant and by developing comparative standards for interchange of information between the various plants within the industry.—R. B. Wolf, Chairman; G. D. Bearce, Vice Chairman.

Committee on Sulphate Pulp

The Sulphate Pulp Committee, which was recreated at the last annual meeting of TAPPI, has had considerable difficulty in getting organized. Of the members appointed, only two are situated so that they can take an active part in the committee work. Regardless of this handicap, however, a course of procedure has been partly worked out and with a full committee for the coming year, we hope that much valuable work can be done.

At the time of the organization of TAPPI, the sulphate process had been in operation on this continent but seven years. The first sulphate mill was put in operation by the Brompton Pulp and Paper Company at East Angus, Quebec, in 1907.

During the past seventeen years the number of sulphate mills in the United States and Canada have increased until there are now forty.

Methods of Operation Still Crude

In the sulphate process, as in any other process in its early stages, methods of operation are still crude and only time and labor can refine them. We produce a strong pulp from woods which cannot be utilized in the sulphite process. However, the pulp is dark colored and hard to bleach. Our chemical losses are high. Our recovery systems are expensive to operate and we throw away thousands of dollars worth of by-products into the air and sewer every year. Likewise we still have the disagreeable odor from the organic sulphur compounds which advertise the presence of a Sulphate mill for miles around and many of us are still dumping lime sludge into the sewer.

Some work has been done on the bleaching of kraft pulp but to date the results have not been satisfactory because of the excessive decrease in strength of the pulp when bleached to a medium white.

Improvements

In the recovery, improvements have been made in the furnaces and methods of operating. One mill has made a long step in advance in the recovery. Other mills will follow but it is the writer's opinion that recovery changes will be along lines that will facilitate the recovery of byproducts from the black liquor.

A number of mills are now recovering turpentine from the digester relief gases. This is a simple matter but the chief difficulty seems to be the elimination of the obnoxious odor from the turpentine in order to make it salable.

The sulphate odor is one of the problems which has received a lot of attention, especially abroad where the population is more dense. Various methods have been proposed for its elimination but to the writer's knowledge there are none in use in this country.

The problems cited in the preceding paragraphs are for the purpose of giving a slight idea of the work to be done in the sulphate pulp industry. I, as chairman of the present Sulphate Pulp Committee, would recommend that the committee for 1925 consist of six or seven members.—O. S. Egan.

Committee on Sulphite Pulp

The developments in sulphite pulp manufacture in the past ten years, with a few noteworthy exceptions, have been along the lines of general tightening up of the process, and elimination of small wastes. Led by a few farsighted concerns, who realized the possibilities of careful control of the process, the general level of quality and uniformity of the sulphite pulp made in this country has been raised until only the backward mills have difficulty in making pulp suitable or the grades of paper made.

Turning Toward Other Species

The rapid depletion of spruce and balsam forests is turning the eyes of manufacturers toward other species for their supplies. Hemlock already provides the entire wood supply for some mills and hardwoods are gradually being introduced into sulphite pulp suitable for some grades of paper. Further development along this line may be expected. Tamarack is used to some extent where available and jack pine is reported to have been used successfully.

Echoes from Europe indicate that efforts are being made there to utilize the more resinous woods and should success appear, the extension of the sulphite process to woods of the type of jack pine, scrub pine, and lodgepole pine will no doubt follow.

Reports of successful utilization of more resinous woods by the introduction of soda base in place of some of the calcium or magnesium have been heard. One quite revolutionary step is the building of a mill to operate with normal sodium sulphite as the cooking chemical. This mill in its operation approaches that of the alkali mills and is more properly considered there than under sulphite. At the other extreme is

the report of the successful operation of a mill in Sweden using sulphurous acid alone as the cooking chemical.

Economies in heat are beginning to receive more attention as evidenced by the introduction of the Decker process for cooking sulphite.

The utilization of the waste sulphite liquor containing rather more than half the dry weight of the wood digested, has made progress. In a number of the larger plants a portion of the waste liquor is evaporated and a market is found for the material as a tanning extract, a core binder or a road dressing. For complete utilization and to obviate the stream pollution at present necessary, it is possible that in a few more years the sulphite waste liquors will be applied as a fuel to supply part of the steam required for digestion.

Accompanying the process development and frequently pointing the way, the study of the chemistry of wood and of the reactions underlying the process is added to the knowledge of the underlying principles, and laying a foundation for the further intensive control of the quality of pulp, and for still more economical utilization of materials.

In the field of bleaching the most notable step has been the introduction of equipment for bleaching at high densities. This field also has seen a gradual application of scientific principles to processing until the old axiom that bleached pulp was necessarily weak has been discarded.

Further development in this field in the use of bleaching agents other than hypochlorite will probably follow.

Special Pulp for Special Purposes

Special pulps for special purposes have been the logical outgrowth of better control of processes and have necessitated the more thorough understanding of methods for determining the quality of pulps. The study of methods for determining the potential papermaking qualities of pulps has been undertaken with a view of determining, first, the effect of variations in cooking conditions on the quality, second, the relation between quality as determined by a beating test and the paper to be made, or in other words the value of the beating test as a measure of the utility of the pulp, and, finally, the selection of a beating test that may be proposed as a standard method. —B. S. Summers, Chairman; R. N. Miller, Vice Chairman.

Heat, Light and Power Report

The Committee on Heat, Light and Power feel that it has gotten together a very interesting report which consists of papers on "The Burning of Wood Refuse," "Moisture Meter and Water Removal," "Steam, Prime Movers for the Paper Mill."

These papers will be presented by the authors accompanied by lantern slides, and we hope that all members who are interested in these three vital questions will make it a point to be in attendance at the sectional meetings and take part in the discussion.

The papers show that a great amount of care has been exercised in compiling them and I am sure that all of the members would benefit materially by attending the meetings, for a great many pertinent questions are asked and answered in the discussion relative to these papers that do not show in the printed report.

I hardly believe it necessary to emphasize the importance of the Heat, Light and Power Committee to the members. I know of no three things that are more vital in the paper industry than heat, light and power, and the men who have given time and thought to prepare these three papers should have the courtesy of a full attendance when the papers are delivered.

Perhaps it would not be amiss at this time to mention to the members some of the developments that have taken place during the past year that are of interest to the industry.

The generation of steam at high pressures and the use of high pressure turbines which will give a back pressure of 100 pounds or more for cooking, and other process work.

The steam accumulator and the use of dry stack gases for pre-heating the air to the furnaces or for drying bark and other refuse.

The use of anti-friction bearings on different machines used in the industry.

The acceptance by the industry of the electric steam boiler as an outlet for surplus hydroelectric energy.

The application of direct electric heat for paper drying.

The use of economizers of different manufacture for recovery of heat in the machine room.

The great interest that is shown in the moisture meter or some similar device that will record and control the amount of moisture in the sheet of paper as it passes over the machine without the necessity of breaking down the sheet.

The greater interest in power factor correction among paper mill engineers is probably worthy of mention and with it the increasing demand for synchronous type of motors on jordans and beaters where heretofore squirrel cage or slip ring motors were thought necessary.—Wm. Cronkite, Chairman.

Committee on Paper Drying

At a committee meeting held at the time of the 1924 annual meeting in New York, certain changes in the drying code as it then existed were discussed and decided upon. Because of the fact that some paper machines were equipped with more or less elaborate systems for supplying and removing air, with economizing devices, etc., it was felt that the drying code then in use was not so compiled as to secure results by which the drying on all machines might be compared. The changes in the code above mentioned were submitted to the members of the 1924 committee for approval, the revised code printed and distributed among our members.

It had been the hope of the committee this year to have a large number of tests tabulated for discussion, but unfortunately and in spite of our endeavors the response has been rather disappointing. The reason lay, undoubtedly, in the prevailing curtailment throughout the industry in the expenditure of money for test purposes unless such tests were absolutely necessary.

We wish to impress upon the industry in these days of increased costs and rapidly increasing competition the advantages of the keeping of continuous records of steam used on paper machines both for drying and ventilating. By the use of adequate meters for this purpose, costs may be kept at a minimum as an abnormal condition is immediately noted and its cause located and remedied, whereas without some check of this sort a high steam consumption may run on for a month before it comes to the notice of the management or control engineer. It is gratifying to note that almost without exception all of the more recent paper machine installations have been fully equipped for keeping such continuous records.

There is little need in calling attention to the many new systems for vapor absorption and steam circulation which are being advertised to prove the rapidly growing interest of not only the paper industry but also of the manufacturers of paper mill equipment in this drying problem, or to show that existing conditions along this line are, for the most part, considered far from satisfactory. It is gratifying that at this meeting the industry will get data on the operation of John Alexander's application of electrical heat in combination with heat recovery, and it is hoped that Ogden Minton's vacuum system, the value of which has already been demonstrated from the theoretical standpoint, will get a practical tryout during the year.

We hope that Dr. von Lassberg's article, Waste Heat in Pulp and Paper Mills, a translation of which was published in the Paper Trade Journal, of December 11 and 18, received the attention from the industry which it warranted. He points out that we should strive for a final air temperature leaving the machine of from 140°-176° F rather than from 86°-122° F, which is a more common range at present. He shows that under the former condition the amount of air will be reduced about one-sixth over the latter with but a very slight increase in the heat which must be applied to gain the higher temperature. With the lesser quantity of air at these higher temperatures the author goes on to show that a much greater recovery of heat is possible. He also points out that 64 per cent of the total heat leaving a paper machine is in the water vapor carried off by the air from the driers. Since much of this may be recovered by apparatus now on the market, it is not surprising that all manufacturers are evincing greater interest than ever before in heat recovery from this source.

For the coming year we recommend the continuation of at least a small standing committee for the purpose of collecting

drying test data from the various mills and its tabulation for comparison.—W. N. Baker, Chairman.

Soda Pulp Committee Report

The Soda Pulp Committee has been active ever since its inception. Among the different phases of the soda pulp industry to which the committee has devoted considerable time and study a few are here enumerated.

The different filter presses are studied and recommendations made regarding their use as a means of increasing the capacity of the alkali room and decreasing the loss of soda in the lime sludge discharge. A number of mills installed filter presses for this purpose and the results were very satisfactory.

The loss of black ash and other rotary room problems were studied and discussed and methods cited for increased efficiency and decreased loss in this department which have been of assistance to recovery foremen in all soda pulp mills.

Leaching of black ash has been discussed, and improved methods suggested for this department.

The use of sulphur in digester liquor was taken up and discussed which was later followed by the use of other reducing agents such as monosulphite of soda, which have increased the yield and strength of pulp produced and decreased the bleach consumption.

Washing of brown stock has been studied and discussed, resulting in better washing for bleachability as well as decreasing the work of the evaporators due to increasing the strength of weak liquor furnished. The use of continuous filters for this purpose has developed to such an extent that several installations have been made and are reported to be giving very satisfactory results.

Evaporators have been discussed and suggestions made for control of work accomplished as well as increasing their efficiency, which suggestions have been of considerable assistance to the members.

Variables affecting the cooking of wood, and variables affecting the bleaching of soda pulp have been discussed and no doubt the discussions have proven of benefit to the members.

Disposal of lime sludge has been studied and discussed. A number of mills have installed lime reburning plants, which have proven a profitable investment in addition to removal of this material from the streams.

The chemistry of the cooking process has been studied and discussed in sectional meetings. This has brought out phases of the cooking which have never before been understood.

Destructive distillation of black liquor for production of acetone, wood alcohol, ammonia, etc., disposal of black ash from the soda mills, and many other topics of interest to the pulp manufacturer have been touched up on during the discussions insectional meetings of the Soda Pulp Committee.

We can safely state that greater progress has been made in the manufacture of soda pulp, control of the recovery department, and utilization of by-products, in the past ten years, than in the thirty years preceding the organization of the Technical Association.

The Soda Pulp Committee is at present studying the utilization of black ash, reburning of lime, new methods of cooking, washing with continuous filters, efficiency of evaporators, etc.

All soda pulp manufacturers will be interested in the paper to be presented by Martin L. Griffin at our sectional meeting. This paper which is entitled "Chemistry in the Soda Pulp Process" contains some very good suggestions regarding future work that can be done relative to the development of improved methods of cooking. There will also be a paper on "Economy of Lime Reburning."—G. K. Spence, Chairman.

T. A. P. P. I. Banquet

The tenth annual banquet of the Technical Association was given on the evening of February 3 at the Hotel Commodore, New York. President Howard S. Taylor acted as toastmaster. During the serving of dinner an entertainment program was rendered. Miss Beth McCoy performed in several dance numbers, and Mme. Marga Kozlowska pleased with vocal selections. The Century Sextette added to the program.

Before introducing the first speaker, President Taylor briefly reviewed the history of the Technical Association during its ten years of existence, and eulogizing each of the former presidents of the body, telling of their work and aims in building up the organization.

Dr. Ellwood Hendrick, of Columbia University, New York, where he is Professor of Chemistry, talked on "Chemical Causes of Taste." Dr. Hendrick's address was highly enjoyed. He mentioned the fact that he had spoken at a former Technical Association dinner on the subject of "Chemical Causes of Smell."

Canon Almond, of the Memorial Chapel, Montreal, Can., told of his experiences at the front in Europe during the war and elsewhere. He stated that after-dinner talking was nine-tenths nonsense and one-tenth sense, and he mixed in a good deal of humor in his speech.

Silas Winterbottom, humorist, kept his hearers in fits of laughter while he told stories about any and everything.

A feature at the dinner was the presentation of a set of specially bound papermaking textbooks to R. S. Kellogg, secretary of the News Print Service Bureau and a member of the Executive Committee of the Technical Association, who aided in compiling the volumes. Mr. Kellogg responded with a few words, thanking the association. It was announced that a similar set of textbooks would be presented to J. Newell Stephenson, editor of the Pulp and Paper Magazine of Canada, who edited the volumes.

Meeting of Cost Association

An interesting luncheon meeting was held on February 3 at the Waldorf Astoria Hotel, New York, by the Cost Association of the Paper Industry, at which Col. Benjamin A. Franklin, vice-president of the Strathmore Paper Company presided. Col. Franklin emphasized the importance to manufacturers of the work the Cost Association was doing in collecting and disseminating vital information relating to the finances and costs of mills generally and urged those not members, to support the work.

Prof. Sanders spoke of the value of "Accounting to Manufacturers." He deprecated the making of balance sheets by executive order, urging manufacturers to face the facts unflinchingly even in bad times and not to endeavor to smooth over the rough places by ordering their accountants to arbitrarily fix the amount of depreciation to be charged, for instance, Prof. Sanders outlined in a logical way how much real value could be obtained from carefully compiled statistics and cost figures, whereby manufacturers like Napoleon, "could control circumstances instead of letting circumstances control them."

Alexander Wall of the Robert Morris Associates, brought a message to the pulp and paper manufacturers from the credit executives of over 500 banks in all parts of the country. He pointed out the important differences that existed between the financial conditions in different industries emphasizing particularly, the heavy investment necessary in the pulp and paper industry in Fixed Assests and the comparatively small annual turnover. Bankers wanted information which would enable them to judge conditions more fairly as between industries and welcomed the coöperation of the Cost Association in this important work. He urged the manufacturers to supply the information necessary to make possible the compilation of accurate statistics, so that the true facts regarding the randicaps under which they work may be properly understood by their banking friends.

Thomas J. Burke of the Cost Association spoke of the importance of Budgets to business men, and particularly to manufacturers in an industry where it was absolutely necessary that much capital should be tied up in Fixed Assests. A Budget is like a periscope enabling the manufacturer to look ahead and see what is before him. Manufacturers to compile Budgets must estimate sales, necessitating a careful survey of future market possibilities. If all this, it would to a large extent counteract the sinister effects brought about by large over-production in times of depression. Mr Burke reminded those present, that Uncle Sam had saved over a billion dollars in a few years, by using Budgetary Control, and said he believed that Manufacturers might also make large savings if they would whole-heartedly adopt the Budget plan, and gave fourteen reasons why Budgets and good business are synonymous.

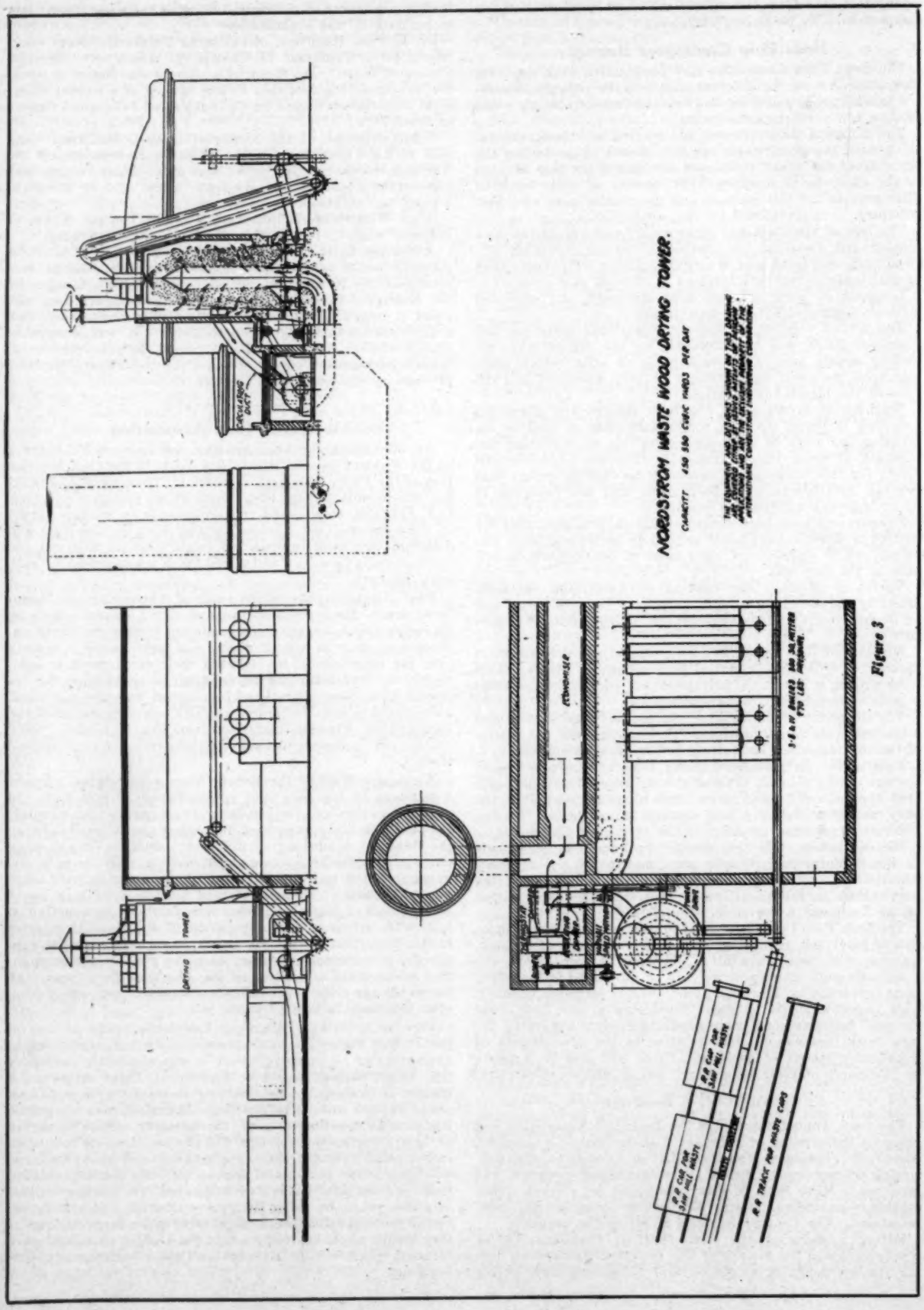


Figure 3

Drying Wood Room Refuse for Fuel*

BY A. J. T. TAYLOR, M. E.

President, Vickers & Combustion Engineering Limited

VALUABLE contributions have already been made for the benefit of the Pulp and Paper Industry of this country on the subject of Wood-Room or Barker refuse, and one of the most important articles on the subject is the "Utilization of Pulpwood Bark Fuel," by Messrs. Rue and Gleason, in the April 17, 1924, issue of the Paper Trade Journal, the reading of which is recommended to all who are interested in using wood refuse as fuel.

A study of the subject has developed these facts:

1st. Wood refuse from wet drum barkers averages 80 per cent moisture and in that state is practically valueless as a fuel.

2nd. Mechanical Bark Presses can economically reduce the moisture content of refuse from 80 per cent down to an average of 65 per cent.

3rd. The average combined boiler and furnace efficiency of burning refuse containing 65 per cent moisture is not over 50 per cent.

4th. One cord of pulpwood yields on an average 10 per cent of wood refuse having a dry weight of about 225 lbs. and a gross heating value of 8,460 B.t.u. per pound.

5th. Barker refuse cannot, by any mechanical method known to the writer, be economically dried below say 60 per cent moisture and heat must therefore be used if the moisture is to be further reduced.

6th. The question of proper furnace design for burning refuse has been satisfactorily solved, and the lower the moisture content in the refuse the easier the problem becomes. Burning coal with wood refuse has no virtue, but it is an expedient devised to overcome the serious problem of burning or getting rid of wet refuse; it is not desirable if it can be avoided.

7th. The average pulp and paper mill has no surplus or waste heat over that required to dry the refuse produced; therefore, it must use all waste heat efficiently — a point commonly overlooked.

8th. It pays in most cases to dry all wood refuse down to 30 per cent moisture if satisfactory means can be found.

9th. The conclusion drawn from the comparison of the gross heating values of refuse with varying percentages of water, as to the relative value of the refuse as fuel, are entirely wrong, unless the differences in efficiency of burning refuse are considered and all gross heating values are reduced to net heat converted into steam. Likewise, all comparisons between the heating values of wood and coal are in error, unless the differences in efficiency of combustion are considered or the wood is reduced to such a moisture content that it can be burned with the same efficiency as coal.

The last three points are the ones that this paper will be devoted to, it being felt that the preceding six points are generally agreed to.

There is one vital question which should always be answered when the saving of anything in an industry is considered, and that question is: "Does it pay?"

The value of the thing saved must always be substantially greater than the cost of saving it, all items of cost included. It is on this basis we proceed to a demonstration that the drying of wood refuse is a desirable thing.

Let us consider point 7. Many attempts have been made to develop dryers for wood refuse; these dryers with one exception, have all been of low efficiency insofar as the utilization of waste is concerned, and they have apparently been constructed on the assumption that there was unlimited waste heat available, which is not so. Investigation has shown that the boiler house in the average pulp and paper mill never has more waste heat than is required when used most efficiently to dry the refuse usually available as fuel, and if the waste heat is used for this purpose, it will show greater returns than if utilized in any other way. To prove this point would require more space than this paper permits, but it may confidently be stated that the efficiency of any waste-heat drying apparatus must be high, to warrant its use at all.

*Paper read at the annual meeting of the Technical Section of the Canadian Pulp and Paper Association, Montreal, January 29, 1925.

Points 8 and 9 are in apparent contradiction of statements made by some previous writers to the effect that it did not pay to reduce the moisture content of refuse below say 50 deg.; these points, however, rest upon interesting facts. The first

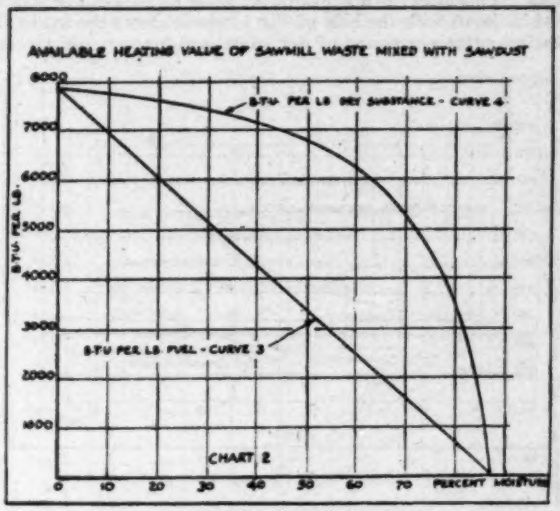

AVAILABLE HEATING VALUE OF SAWMILL WASTE MIXED WITH SAWDUST
B.T.U. PER LB DRY SUBSTANCE - CURVE 4
B.T.U. PER LB FUEL - CURVE 3
B.T.U. PER LB.
CHART 2
PERCENT MOISTURE

Figure 1

is that, so far as the writer is aware, no commercially successful form of waste-heat dryer for wood refuse had been developed prior to the Nordstrom tower, which will be described later in this paper. All other forms of dryers have had one common fault;—they have been inefficient;—and most have failed through several faults, such as fire hazard, heavy first

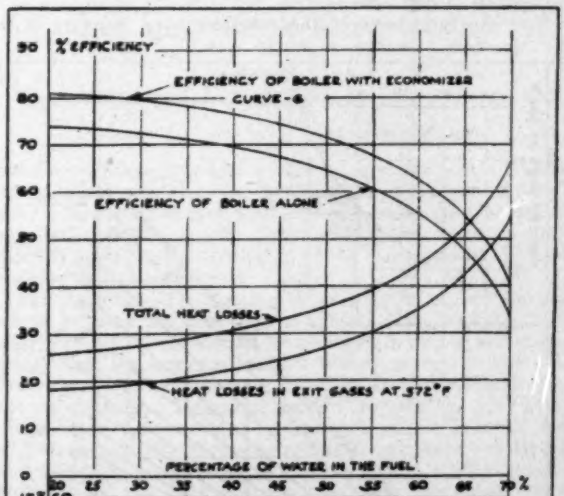
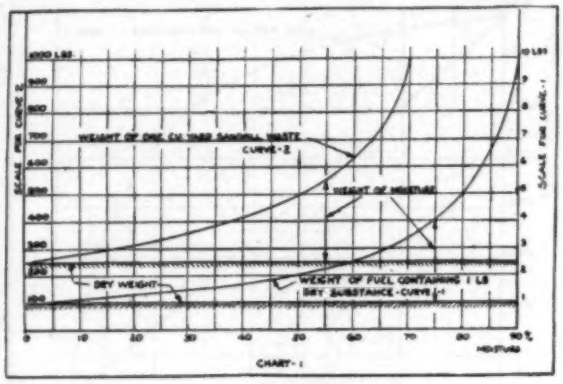


Figure 2

cost coupled with low efficiency, and, lastly, low drying capacity. Therefore, if previous writers on this subject had no knowledge of the Nordstrom tower and merely knew of unsuccessful dryers, they were entirely right in stating that it did not pay to dry below, say 50% moisture, but now that the

Nordstrom tower is available, we have to revise our views.

Another reason for reaching the conclusion that waste heat drying did not pay has been the neglect of point 9—the relative net heating value of refuse with high and low moisture contents. This point is a great importance and should be examined in detail with the help of Fig 1, which shows the available heating value per pound of dry substance for varying degrees



Weight of fuel with varying moisture content

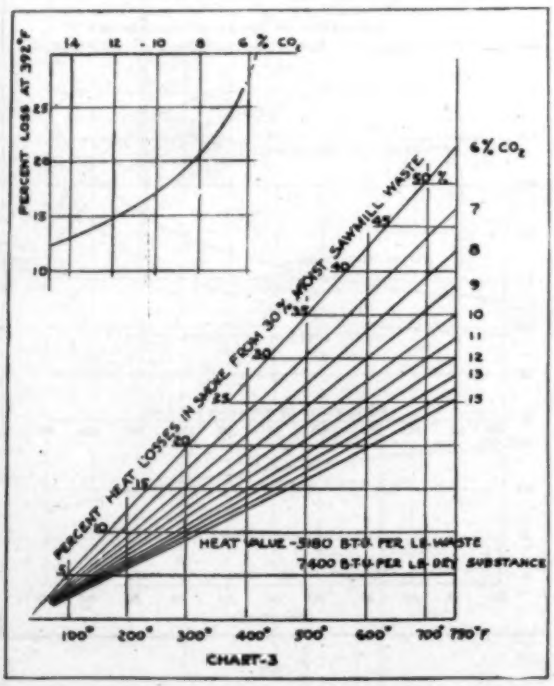
of moisture, and also the available heating value per pound of raw waste.

Comparing wood refuse at three different moisture contents, viz.: 80%, 65%, and 30%, we have from Chart I for 80% moisture, 3,600 B.t.u. available heating value per pound of dry substance;

for 65% moisture, 5,850 B.t.u. available heating value per pound of dry substance;

for 30% moisture, 7,400 B.t.u. available heating value per pound of dry substance;

Now the ratio between these figures is no measure of the


PERCENT LOSS AT 392°F
6 % CO2
PERCENT HEAT LOSSES IN SMOKE FROM 30 % MOIST SAWMILL WASTE
HEAT VALUE - 5180 B.T.U. PER LB. WASTE
7400 B.T.U. PER LB. DRY SUBSTANCE
CHART-3

Heat losses in fuel gases—30 per cent moist waste

respective values of the refuse as a commercial fuel. We must consider with what efficiency the refuse in each case can be burned so as to know what proportion of the available heating value can be usefully employed.

It is safe to assume that on a monthly basis the combined efficiency of boiler and furnace fired with these three grades of fuel will average not over 40% with 80% moisture; 50% with 65% moisture; 70% with 30% moisture. (See Fig 2.)

Therefore, our true basis of comparison becomes:

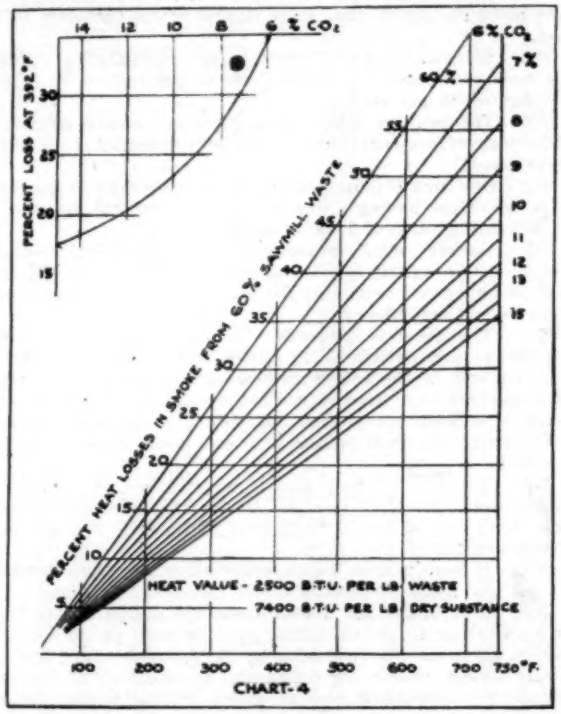
for 80% refuse, 3,600 x .40 = 1,440 B.t.u. net

for 65% refuse, 5,850 x .50 = 2,925 B.t.u. net

for 30% refuse, 7,400 x .70 = 5,180 B.t.u. net

and it follows that the 30% refuse is worth 5,180 ÷ 1,440 = 3.60 times as much as the 80% and 5,180 ÷ 2,925 = 1.77 times as much as the 65%.

Even this comparison is not as favorable to drying as it should be, for, in practice, not only is the difference in boiler


PERCENT LOSS AT 392°F
6 % CO2
PERCENT HEAT LOSSES IN SMOKE FROM 60 % SAWMILL WASTE
HEAT VALUE - 2500 B.T.U. PER LB. WASTE
7400 B.T.U. PER LB. DRY SUBSTANCE
CHART-4

Heat losses in flue gases—60 per cent moist waste

room efficiency much increased as the moisture content is decreased but labor and furnace maintenance charges also decrease rapidly, and the entire boiler room operation improves.

Converting these figures to the readily appreciated basis of value of the wood refuse for the three moisture contents as above, in terms of coal per cord of raw wood received at the mill, we have first to assume coal at $7.00 per 2,000 pounds of 12,500 B.t.u. content per pound, burned at an average efficiency of 70%; second, 225 pounds of dry refuse substance per cord of raw wood, and from these we get:

for 80% refuse, 225 pounds × 1,440 = 324,000 B.t.u. as total effective heat;

for 65% refuse, 225 pounds × 2,925 = 659,000 B.t.u. as total effective heat;

for 30% refuse, 225 pounds × 5,180 = 1,170,000 B.t.u as total effective heat;

therefore, with the assumed value of $7.00 per ton, we have the relative values of the wood refuse as 13 cents,[1] 26 cents and 47 cents for 80%, 65%, and 30% moisture refuse per cord of raw wood delivered to the wood room. Consequently, if we use a mechanical press to reduce the moisture from 80% to 65%, we increase the value of the fuel per cord of raw wood by 13 cents; and if we then dry the refuse with waste gases from 65% moisture down to 30%, we make a further saving of 21 cents per cord of raw wood.

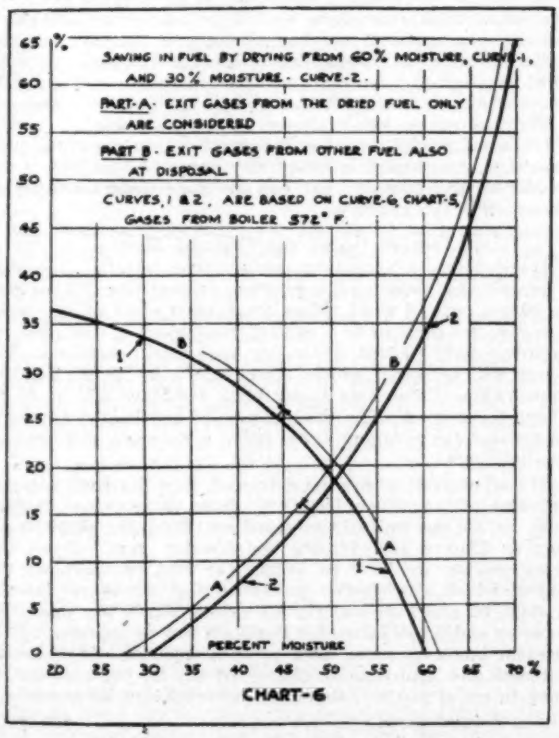
[1] Obtained as follows: $\frac{225 \times 1{,}440 \times 700}{2{,}000 \times 12{,}500 \times .70} = 13$ cents.

The Nordstrom Method of Drying

The only successful method of using waste heat for the drying of wood refuse that has come to the writer's attention, and has been thoroughly investigated, is that invented by Otto Nordstrom, of Sundsvall, Sweden. Fig. 3 shows the essential parts of a tower, built and in successful operation since May, 1923, at the Sulphite Pulp Mill of J. W. Enquist, A. B., Tamfors, Finland. The photograph Fig. 4, shows the plant in actual operation.

This Nordstrom drying tower was designed to dry each day approximately 10,500 cubic feet of sawmill waste from a moisture content of 60% to one of about 30%, the fuel to consist of approximately 60% chips from slabs and edgings, and about 40% saw dust. The chimney gases were taken out after passing through the economizer at a temperature of 520° F. By circulating the gases, their temperature before being led into the fuel was reduced to 327° F. The waste gases from the tower had a temperature of 145° F.

The drying tower proper is built near the boiler house of the mill in which the dried waste fuel is used. The boiler house at present contains three 300-h.p., B. & W. water-tube boilers, with economizers. The flue gases used for the drying are drawn out of the flue after passing through the economizer by an electrically driven fan, erected in a separate building outside the boiler house. The waste fuel arrives at the mill in railway trucks, and is discharged from these to a conveyor, which transports it to the tower's elevator. After being dried, the fuel is conveyed into the boiler room, where it is distributed to the furnaces of the boilers. The fuel may, in case of interruption in the operation of the drying plant, be conveyed direct to the boiler room. The speed of the discharge from the drying tower can be regulated to suit


SAVING IN FUEL BY DRYING FROM 60% MOISTURE, CURVE-1, AND 30% MOISTURE - CURVE-2.
PART-A. EXIT GASES FROM THE DRIED FUEL ONLY ARE CONSIDERED
PART B. EXIT GASES FROM OTHER FUEL ALSO AT DISPOSAL
CURVES 1 & 2, ARE BASED ON CURVE-6, CHART-5, GASES FROM BOILER 572° F.
PERCENT MOISTURE
CHART-6

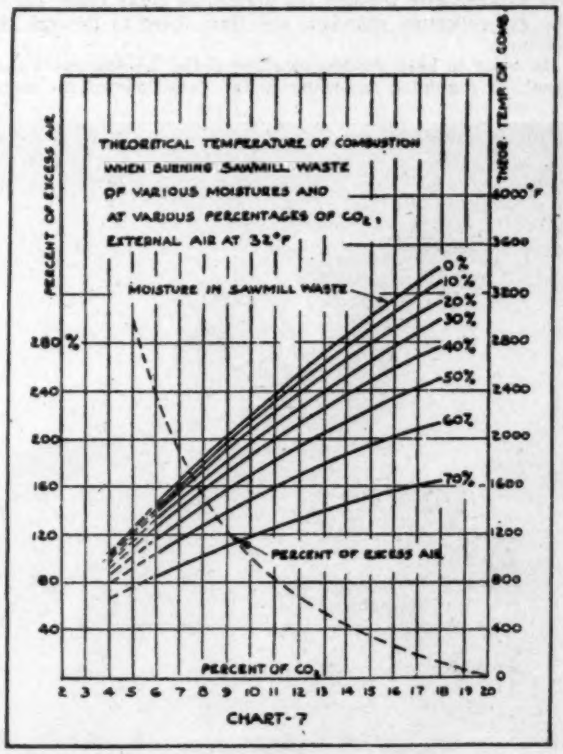
Saving, in per cent, effected by drying fuel

convenience, and in this way the quantity of fuel, delivered to boiler house, is controlled as required.

The Nordstrom Drying Tower

This tower, having a capacity of about 86 cubic yards of fuel, consists primarily of an inner and an outer round tower of sheet iron, between which towers, the fuel, during the drying process, sinks down; both the inner and outer towers are made sloping shaped like truncated cones, to prevent the chips bridging. In order, that is, to allow the drying gases to pass, both the inner and outer towers are perforated in such a way that the waste cannot attach to or pass through the perforations.

Around the outer tower is a brick construction with a roof of reinforced concrete, the latter having a steel plate chimney. The outer tower and the brick cover rest on a rein-



Theoretical combustion temperature of waste

forced concrete construction. The inner tower, which is closed at the upper end, and is a continuation of the duct from the flue, is borne by a cast steel collar, resting on the concrete foundation itself. At the upper end of the tower, arrangement is made for the feeding in of the chips, and at the lower end for their discharge.

The Feeding.—The feeding is done by a bucket elevator, which delivers the fuel into a special feeder. This feeder distributes the fuel into the ring-shaped drying space in such a way that the larger pieces are placed nearest to the inner tower, and the smaller ones, such as sawdust, etc., nearest the outer tower. This arrangement is made in order to decrease the resistance of the gases through the layer of fuel, which consequently gives the smallest resistance per surface unit near the inner tower, where the speed of the gases is highest, and the largest resistance near the outer tower, where, the speed is lowest, this saves power. Also, the largest pieces come in contact with the hot-test gases, which is, of course, preferable.

The drying space is always kept filled while the plant is in operation thus preventing the gases from going direct from the inner tower out to the chimney. In order to provide for observation of the fuel level in the tower from outside, a float gage is mounted on the roof.

Discharging.—This is effected by a partially conical rotary bottom, filling the whole cross-section between the inner and outer towers, its flat part also extending to constitute the bottom of a ring-shaped space of a certain height, and lying outside the external tower. As both the conical part of the bottom and its plane part inside the outer tower have suitably arranged scrapers fastened to them, and as the bulk of the fuel rests on this bottom, the pressure on its conical part and the movement of the scrapers during rotation force out the fuel through the ring-shaped opening, which is situated be-

tween the lower edge of the outer tower and the rotary bottom. The fuel in the ring-shaped space then follows the flat bottom, which is also equipped with scrapers, to an opening in the side, from which the fuel falls onto the conveyor and is transported to the boiler house.

The Gas.—The gas is delivered through a fan, which forces it from below into the inner tower, and from this through perforations, more or less radially through the layer of fuel, and subsequently through the perforated outer tower out to the gas collecting chamber, and from there to through the chimney.

In order to keep the temperature of the ingoing gases constant, or regulated according to the variations of the moisture in the fuel, a thermostat is inserted in the fan's discharge channel and connected with an Arca type regulator. This regulates a damper, placed in a circulating duct between the gas collecting space in the tower and the fan inlet. When the temperature rises above the one for which the thermostat is adjusted, the Arca regulator opens this damper, the hot gases are diluted with part of those which have already been used for drying until the temperature is stabilized. This gas is used for dilution, in order to avoid the necessity of heating fresh air for the purpose, and, also, in order that the percentage of carbon dioxide in the drying gases may remain as high as possible.

Fig. 4—Drying plant at J. W. Enquist, A.B., Tammerfors. Capacity 10,000 cubic feet per 24 hours

The Drying.—The drying is done simultaneously through the whole pile, as the hot gases from the inner tower are continuously passing through the layer of chips in a nearly radial direction, and on their way out to the circumference come in contact with almost every piece. The fuel adjacent to the inner tower soon becomes absolutely dry, and the thickness of the dry layer increases as the fuel sinks downward by reason of the discharge and the feeding in of new fuel. The relative position of the various chips to each other being nearly always constant in the horizontal plane, there invariably exists a moist and cooler layer next to the outer tower, cooling down and saturating the gas, even supersaturating it, so that the outermost layers especially those higher up, are sprinkled with condensed water, which, owing to the speed of the gases, follow them in the form of water.

Efficiency of the Nordstrom Tower.—For the purpose of ascertaining the efficiency of the drying tower, tests were made in June of 1925 by representatives of the two Swedish boiler associations and of the Association for Power and Fuel Economy in Finland. The complete tests are described in a joint article by Mr. Otto Nordstrom and the writer entitled "The Drying of Wood Refuse and its Importance to Industry" appearing in the January 1st issue of the Paper Trade Journal.

Fig. 5 shows the heat balance obtained; and if the drying power is calculated as the ratio between the heat used for evaporation of moisture and the heat supplied to the tower above the temperature of the atmosphere plus 48° F., being the temperature of the outside air, exclusive of the heat passing out with the dried refuse the efficiency would be 70 per cent. If, however, credit is taken for the heat in the dried fuel as it is discharged from the tower on the assumption that the fuel is delivered immediately to the boiler furnace, and the heat in the fuel is thus utilized, then the efficiency would be 85 per cent.

It is sufficient to know that the efficiency of the Nordstrom tower is considerably higher than the efficiency obtained, even for very short periods, on other waste-gas drying processes, none of which, so far as the writer knows, have been able to remain in continuous operation.

One of the reasons why the efficiency of the Nordstrom tower is high is the fact that the gases come into close contact with the fuel and are cooled down to and below the point of saturation without those difficulties which, through the condensation of moisture, invariably arise in other forms of heat using apparatus; such, we will say, as an air preheater. Another reason for the higher efficiency is the fact that the radiation losses are negligible, the heated gases being supplied through the central inner tower, and only the cooled gases coming in contact with the outer shell of the tower.

The Nordstrom tower illustrated in this paper is one of three in successful operation. Several others are under construction now; and it is confidently expected that before the middle of the present year one or more towers will be in operation in this country.

Cost of Drying and Financial Return

If we assume a Nordstrom drying tower installation having a capacity for reducing the moisture content from 65 per cent to 30 per cent in wood refuse from 1,000 cords of raw wood per day, we shall have a capital investment in the plant of approximately $60,000, depending upon local conditions. The tower will occupy a ground space 22 ft. by 22 ft., and the upper edge of the main tower brick structure will be 35 ft. above the ground. The stack can be of any height necessary to prevent the escaping vapor being a nuisance to surrounding buildings.

If coal costs $7.00 per ton delivered, then the gross increase in value of the refuse dried will, from our previous calculation, be 21c per cord of raw wood or 1,000x 21c=$210.00 per day or $210 x 300=$63,000 per 300-day year. From this gross saving we have to deduct the cost of operating the dryer, which, for electric power on the conveyors and fan motors, oil and supplies, will not exceed $5,000 per year. We have no additional labor, for the plant can be operated by the present boiler room or bark press attendants. We have an interest and amortization charge of say 20 per cent on the investment of $60,000; therefore our statement becomes:

Gross annual saving.....		$63,000.00
Deduct power and supplies.....	$ 5,000.00	
Deduct interest and dep.....	12,000.00	17,000.00
		$46,000.00

The saving, heretofore, under these conditions would be $46,000 per year.

Drying of Sulphate Pulp Chips

The Nordstrom method of drying is practicable in other drying applications. One very interesting application is that of drying the chips for sulphate pulp manufacture. Waste

from sawmills is sometimes used to make sulphate pulp. This waste, which is free from sawdust and bark, is hogged to similar size as the chips from timber. There is not only a question of unnecessary heating of the surplus water in the chips to a high temperature in the digester, but there is also the question of the steam for boiling, as the surplus water in the wood must be evaporated in the recovery house. From these two considerations one easily understands why the steam consumption is higher when using the raw chips, than when using dried chips. From the recovery house there escapes, as from a regular boiler house, a whole lot of heat; and it has been found that this heat is sufficient for evaporating the largest part of the water in the wood. In case the waste heat should not suffice entirely, part of the heat may be taken from the rotaries, and the drying will still be profitable.

The gases from the recovery plants do not contain any large particles of carbon, but may well be used for drying purposes, especially when kraft pulp is manufactured. The dust of chemicals, which follows the gases, stays in the chips, which form a filter for the gas. Simultaneously, the chips absorb the obnoxious ingredients in the gases, which are oxidized and destroyed. The waste gases from the drying tower are thus deodorized.

It would appear that there are many advantages to be gained by the drying of the sulphate pulp chips, some of which are:

1. Decreased steam consumption (see example below).
2. Decreased consumption of sulphate on account of smaller losses in the exit gases and smaller losses by washing the pulp on account of stronger black liquor.
3. Better run of the mill; that is, increased production.
4. Less repairs of the evaporators, which, as time goes on, may be increasingly important.
5. The deodorizing of the recovery gases.

Mr. Brahmer, chief engineer, has shown in Svensk Papperstidning, July 31, 1920, the importance of using dry wood in pulp manufacture instead of wet wood. According to him, the steam consumption in the sulphate pulp process, with other factors constant, is a factor of the dilution of the white liquor and the moisture in the wood. He shows with many graphic charts the rules for these facts, and points out the importance of water economy for the steam consumption and also the bad influence of ice in the frozen chips in the winter time.

For instance, direct boiling at 320 deg. F. with white liquor of 12 deg. Be. To heat 2,000 lb. (figured bone dry) chips of 30 per cent moisture from freezing point to 320 deg. F. takes 5,000 lb. steam; but 60 per cent moist chips require 9,600 lb., or 92 per cent more. If the temperature of 30 per cent moist chips in winter time is minus 4 deg. F., there is required in addition 1,520 lb. of steam to heat the chips to freezing point and to melt the ice. For 60 per cent moist chips 4,340 lb. of steam are required for 2,000 lb. (bone dry figured) wood.

With dry wood and strong white liquor it is also possible to keep the black liquor at a higher strength and thus eliminate the evaporation of large volumes of unnecessary water. To evaporate black liquor from 8 degrees Be. to 30 degrees Be. takes 250 per cent more steam than evaporation from 18 degrees to 30 degrees Be., according to Mr. Brahmer.

Example

Required the steam consumption, when using direct steam for cooking, for heating the excess water in 55 per cent moist chips as compared with 20 per cent moist chips.

Heat content of steam, 1,180 B.t.u.

Temperature in digester, 320 degrees F.

Assumed that no radiation losses occur.

4620 lb. wood dry substance are required for 2200 lb. pulp.

1 lb. dry substance, when 55 per cent moist, contains 1.22 lb. water.

1 lb. dry substance, when 20 per cent moist, contains 0.25 lb. water.

Steam needed for heating 1.22—0.25—.97 lb. water 320 degrees F. figured on 2200 lb. pulp,

$$\frac{4620\times(320-32)\times0.97}{1180-288}=1452 \text{ lb.}$$

Excess water to evaporate in soda house: 4620×0.97+1452=5934 lb. To this should be added excess water by greater dilution in the washing process, which may be estimated to 1100 lb. per 2200 lb. pulp. For evaporating at 100 per cent efficiency without vacuum should be required fuel to make 5934+1100=7034 lb. excess steam per 2200 lb. pulp, or together with the excess steam used in the cooking 7034+1452=8486 lb.

At several mills in Sweden and Finland we have made experiments, drying the chips in this way. At two of the mills

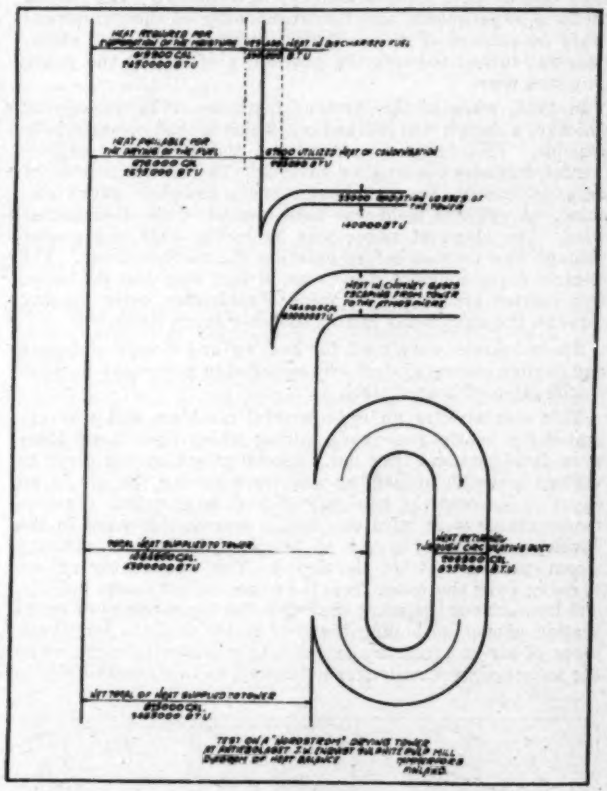


Fig. 5—Heat Balance

extensive experiments were made so that the chips for one cook in a digester holding 1050 cu. ft. were dried, and no dirt could be found in the pulp on examination.

As mentioned before, the characteristic smell of the exit gases is completely removed. During one of the larger experiments, when 2.10 cu. ft. were dried in each batch, the experiment being made in the recovery house, the laborers for several hours each time were attending to their ordinary work in a fog of moisture and gas from the drying chips, without any other inconvenience than would arise from a usual fog. When, however, the same amount of exit gases as used in the experiment was directly blown into the room, work had to be stopped immediately.

The Alexander Electric Paper Dryer*

BY JOHN E. ALEXANDER

IN THE past few years electrical energy has been used in practically every phase of industrial work, and the development of larger hydroelectric units has made this commercially possible. In the paper industry electrical energy has been used for practically every purpose except drying the paper directly. All classes of papermaking machinery are now generally motor driven, and even steam boilers are operated electrically where energy is cheap.

The use of electricity for drying the paper directly has been

*Presented at the annual convention of the Technical Association of the Pulp and Paper Industry at the Waldorf-Astoria, New York City, February 3 to 5, 1925.

talked of for many years, and various electrically heated rolls and similar devices are shown in the patent office records.

Development

In 1910 the writer visited several of the large mills and water power developments on the Pacific coast and became interested in this phase of paper machine development. Following this, rather extensive experiments were carried out with various electrically heated drying cylinders. The results of these experiments was the abandoning of the cylindrical dryer on account of its mechanical disadvantages, and attention was turned towards the possibility of drying the paper on a web wire.

In 1916, while at the Armour Institute of Technology at Chicago, a design was worked out which looked commercially possible. This design was developed and a complete experimental unit was constructed in 1922. This unit consisted of an experimental digester, beater and a complete paper machine. A cylinder mold was used instead of the Fourdrinier wire. The sheet of paper was 20 inches wide and passed through two presses before entering the electric dryer. The electric dryer chamber itself was 16 feet long and the paper was carried on endless 60 mesh Fourdrinier wires passing through the electrically heated chamber seven times.

Space heaters were used for heating and a very elaborate and flexible control system was installed to give every possible combination of heat control.

This was strictly an experimental machine, and was operated for nearly two years, during which time many ideas were developed and tried out. Special attention was given to various methods of baffling and recirculating the air in an effort to increase the efficiency of heat application. Various temperatures were tried out, and it was at this point in the development that the use of temperatures above ordinary steam pressures were developed. The abandoning of air to carry away the vapor from the paper followed very quickly, and brought out the point that with the temperature of evaporation above the boiling point of water that the large volumes of air required in the ordinary machine to carry away the moisture were no longer necessary, as this passes away in the form of superheated steam, which is a gas in itself and needs no conveyor.

Many grades of paper were made successfully on this experimental machine, including Kraft, bond, sulphite wrappings and news, and it was decided to proceed with the construction of a medium sized commercial unit.

First Commercial Machine

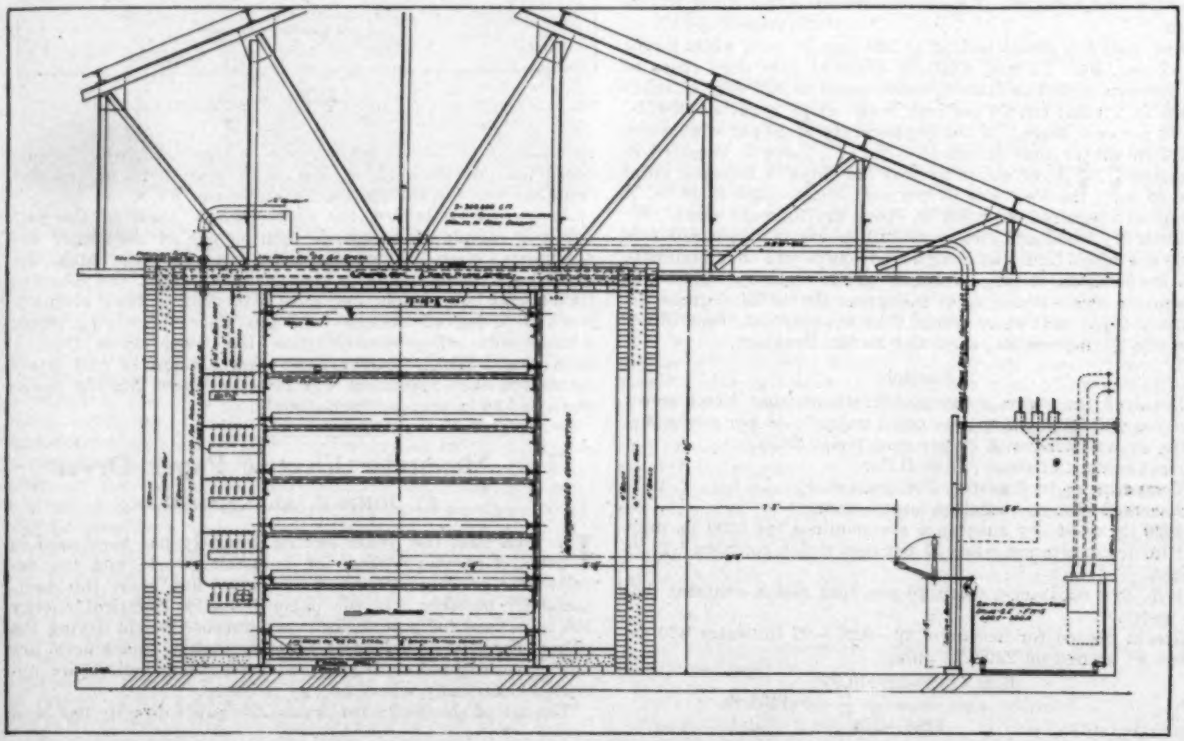
In 1924 work was started on a 94-inch standard Fourdrinier paper machine with an electric dryer unit designed to run 300 F. P. M. on standard news and with equipment for commercial production of 1,000 pounds per hour. After six months of intensive construction work the first sheet of paper was produced July 7, 1924, and the machine has been in operation since that time.

The accompanying drawings and illustrations indicate the construction of the machine quite clearly, but a brief general description will be given in the following paragraphs.

The electric dryer section consists of a brick oven which in this installation is approximately 36 ft. long, 17 ft. wide and 12 ft. high. The walls are 14 inches thick and consist of two 4-inch courses of brick with 6 inches of mineral wood between them. With this construction the heat loss by radiation was reduced to a minimum. The oven walls are practically room temperature, and a recording thermometer laid on the roof averaged 110° F.

The oven is built around a structural steel frame which supports the roof and all of the bearings and working parts of the machine. This frame is rigidly braced and is set on sole plates similar to the regular paper machine, and adequate provision is made for expansion and contraction without possibility of its getting out of alignment.

The oven is divided into three compartments; one outer chamber approximately 5 feet long at each end and an inner chamber 27 feet long in which the actual drying of the paper takes place. The paper makes 5 passes through the machine, being carried back and forth between 6 endless Fourdrinier wires which run over 6 rolls at each end of the machine. The rolls at the wet end of the machine are driven by gears, while the rolls at the opposite end are driven by the wires them-

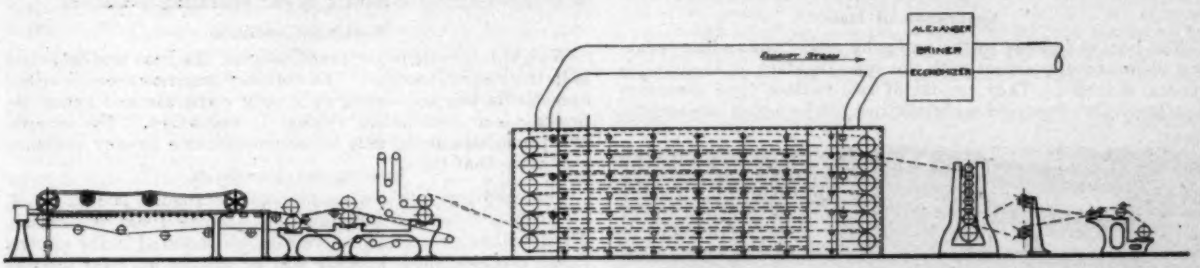


Alexander Electric Dryer—Cross section of machine and drying chamber, showing bus bars, heating elements, control panel—commercial machine

selves. These breast rolls are mounted on suitable carriages with counter weights for taking care of the expansion and contraction of the carrying wires.

Carrying Wires

There are six 69 feet long by 88 inches wide wires used in the machine. Each wire is supported between end rolls by



Alexander Electric Paper Dryer—Front elevation and longitudinal width, at plant of Nekoosa-Edwards Paper Co., Port Edwards, Wis. Co., Port Edwards, Wis.

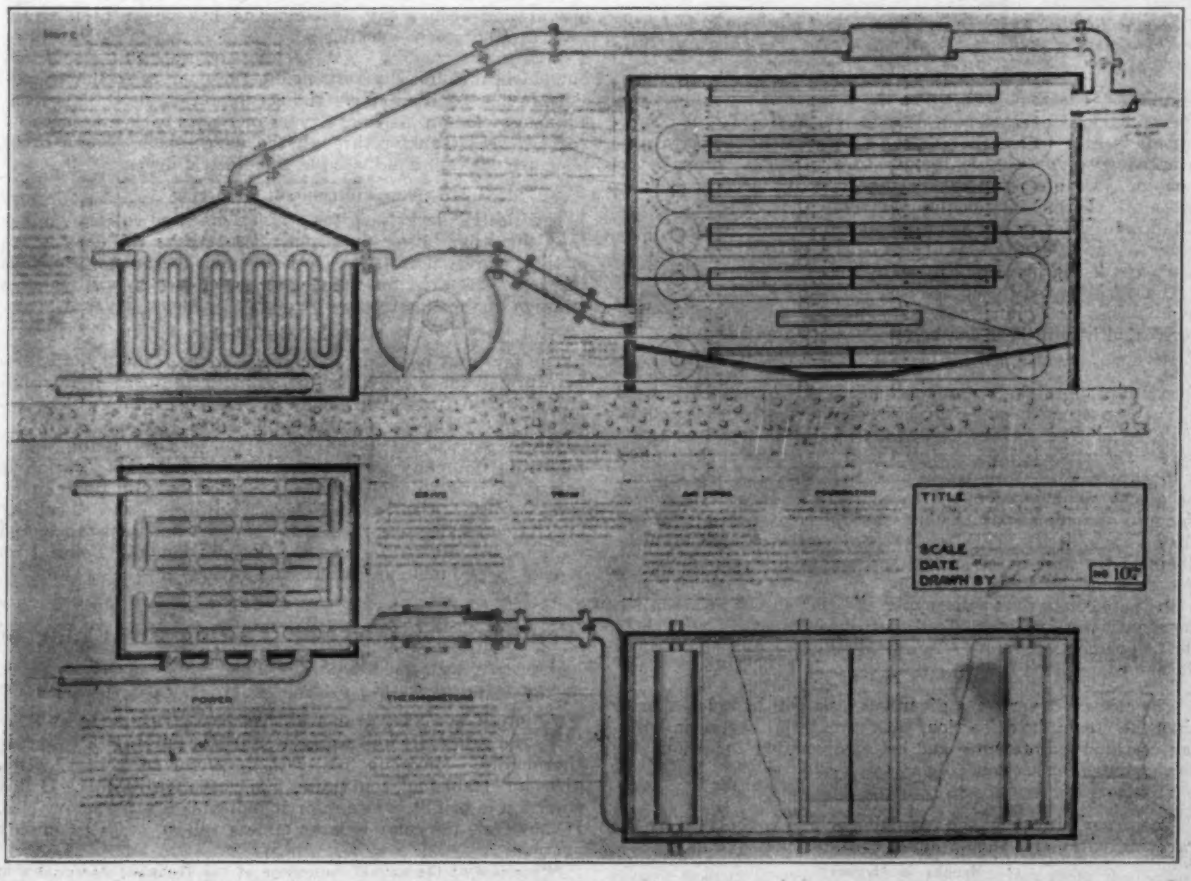
one 8½-inch guide roll and 6 4½-inch table rolls. The breast rolls, drive rolls and the 6 guide rolls are in the end compartments, and the table rolls are all in the inner compartment. In this way it is possible to maintain the inner chamber at temperatures above 450° F., while the end compartments are about 250° F.

The method of changing wires is very similar to that long in use for Fourdrinier wires on a standard paper machine. The table rolls, guide rolls, baffles and heating elements inside of the loop of the wire to be put on are all removed and carried out of the oven. The tension in the wire is relieved by removing the weights from the breast roll counterweighing system, and the breast roll itself is rolled out on suitable carriage. The balance of the operation is similar to changing the wire on the wet end of the standard Fourdrinier machine.

At each corner of the machine there is a large door giving access to the end compartments at both the front and back sides. When these doors are opened the end compartments cool off sufficiently so that one may enter to make any necessary adjustments. If they are not opened for too long a period, this does not have any noticeable effect upon the drying.

All of the drive rolls, breast rolls, guide rolls and table rolls are carried in water cooled bearings which are lubricated with a heavy grease.

Practically all of the evaporation of moisture from the sheet takes place in the inner chamber. Slight pressure is maintained in this chamber to preclude any chance of air infiltration. This vapor escapes into end compartments, where it is removed by exhaust ducts connected to the exhaust fan. These outer chambers are built as tightly as possible with the



Alexander Electric Paper Dryer—Experimental size—showing plan, longitudinal section and method of circulating the air

idea of reducing air leakage to a minimum and thereby reducing the volume of the exhaust vapor and making the recovery of heat in this vapor easier. Suitable dampers are located in the exhaust ducts to control the flow of exhaust vapor. In this first commercial machine the temperature of the vapor in the exhaust stack averaged 195° F. dry bulb and 161° F. wet bulb with the machine running 220 F. P. M.

Application of Heat

The heat is applied to the paper by open type radiant heating elements in contrast with the space heaters on the experimental machine. They consist of two radiant type chronium heating coils supported on insulating bricks which are in turn

Alexander Electric Paper Dryer—commercial machine, 80 inches in width, at plant of Nekoosa-Edwards Paper Co., Port Edwards, Wis. Shows discharge end of machine

held in a steel channel carried on the frame of the drying oven. These elements operate at a nominal voltage of 440 V. They are all located inside the central compartment, and are distributed to give suitable temperature gradient through the machine. Each section of heating elements is controlled by automatic thermostats on the main switchboard.

Suitable safety devices are installed to take care of (a) proper running of the Fourdrinier wires, (b) slowing down or stoppage of the machine drive, (c) break in the paper.

The paper is fed through this machine by hand very easily, and it was not found necessary to use automatic feeding devices, although these can be very readily applied.

Character of Product

In addition to the many mechanical advantages discussed later, the strength and character of the paper produced by the electric dryer is very noticeable. With the standard steam dryers the paper is held against the dryer by the dryer canvas, and is prevented from shrinking as it drys. This characteristic is emphasized in the case of the Yankee dryer where the web of paper is stuck onto the polished surface and can shrink very little. This results in a tendency to strain the fibers in the process of drying and makes it more difficult to get a strong sheet.

In the electric dryer the paper is held loosely between the carrying wires and is in effect a loft dryed sheet. Under these conditions the maximum strength, toughness and pliability is developed.

Floor Space

The electric dryer for a given machine will be much shorter than the steam dryer section, with a material saving in building cost and maintenance and better operating conditions due to shorter dryer section.

Dryer Canvas

The dryer canvas on the regular machine is replaced by the carrying wires and should affect considerable savings.

Breaks in Dryers

We have never had a break in the electric drying chamber, and it is not uncommon to run between washups without a break from any cause whatever. This will appeal to those familiar with this very noticeable trouble in the ordinary steam dryer machine.

Moisture Control

The simplicity and accuracy of electrical heat control is apparent and needs no amplification. Drying conditions can be changed almost instantly to suit operating conditions.

Working Conditions

With the electric dryer practically all the heat and moisture is in the closed chamber. The ordinary machine room is either excessively hot and damp, or a very elaborate and expensive heating and ventilating system is necessary. The electric dryer machine room will be as comfortable as any ordinary room.

Heating and Ventilating

The ordinary machine room requires about 1,000 C. F. M. of warm air per ton per day, for machine room ventilation. There will be practically no ventilation required in the electric dryer machine room and air will be needed only for heating and for ventilating over the wet end of the paper machine. This will make a very noticeable saving in both installation and operating expenses.

Power

This machine is ideal for the use of low priced electric power. In places where there are extensive hydro-electric developments or possibilities in this direction the price of coal is generally very high. The use of electricity for drying should effect a considerabl economy under such conditions.

Application

The electric dryer may be installed as the entire drying unit of a new paper machine or may replace present steam dryers. It can also be used to supplement present steam dryers by adding an electric drying unit to the present installation.

Air, Water and Dirt in Dryers

The removal of air and water from the steam drum dryer has always been a big problem and has never been really solved. The steam packing boxes and expansion joints have always given trouble. Not keeping dryers clean inside and outside is undoubtedly responsible for poor operating conditions in many mills today. The accumulation of oil films from exhaust steam on inside of dryers increases back pressure and reduces heat transfer through the dryer shell. These problems are entirely eliminated in the electric dryer.

Power Required for Drive

The electric dryer unit for a given machine will be smaller than the steam dryer unit, and will not have the heavy rolls or tight canvas now used. On larger machines we expect that the power required for the electric dryer section will be but a fraction of the amount now required for steam dryers.

Exhaust from Dryer

The fact that moisture is removed in the form of high temperature steam is one of the outstanding features of this machine, and in further development work the dryer will be designed to exclude air as much as possible.

Much credit is due to the Westinghouse Electric and Manufacturing Company for the use of a considerable amount of equipment and valuable advice in connection with this experimental work. Also to the Nekoosa Edwards Paper Company and its employees for their loyal support and assistance, and to the J. O. Ross Engineering Corporation and Beloit Iron Works for valuable assistance and advice.

Tendick's Method for Testing the Color of Rosin Size*

By Materials Testing Committee, H. U. Kiely, Chairman

WEIGH out 83.3 grams of size paste (60 per cent dry) and gradually add water at 120° F., stirring the mixture thoroughly. Make up finally to a volume of 1 liter. This gives an "emulsion" containing 5 per cent total solids. If this emulsion is bright, white color it indicates a satisfactory size. If, however, the color is more or less yellow, or has a muddy

*Presented at the annual convention of the Technical Association of the Pulp and Paper Industry at the Waldorf-Astoria, New York City, February 3 to 5, 1925.

appearance, it may be due to low grade rosin, low free rosin content, or both. The following test should be made on all samples of rosin size.

Measure out 10cc of the 5 per cent emulsion, dilute to 100cc and add several cc. of 10 per cent acetic with stirring until all of the rosin is precipitated. Filter off the rosin, fold the filter paper and press between blotting paper, open the filter flat and allow to dry at room temperature. (Drying temperatures of 95° F. and over will cause the finely divided rosin to fuse together and become yellow. A satisfactory size should give a bright, white precipitate in this test. If the dried precipitate has a yellowish or grayish tint or breaks with a brown, resinous fracture, it is unsatisfactory.

A further check on the color of the size is made as follows: In a separatory funnel pour about 25cc saturated salt (NaCl) solution and 5cc of 50 per cent acetic acid. Then add 25cc of water white toluene and by means of a pipette, 10cc of the rosin size emulsion. Give the separatory funnel a swirling motion for several minutes to allow the toluene to dissolve all rosin, separate the aqueous layer, pour the toluene extract through a dry filter, catching the clear filtrate in a 50cc Nessler tube. A satisfactory size should give only a light green or light lemon yellow colored extract. The poorer the grade of rosin used in a batch of size, the darker will be the toluene extract which contains all the coloring matter as well as the abietic acid. This latter test is most useful for comparing two samples of size and is very rapid.

Development in Paper Drying With Alexander Dryer*

BY STEPHEN A. STAEGE

General Engineer, Westinghouse Electric & Manufacturing Co.

THE development history of the Alexander Electric Paper Dryer, together with illustrated descriptions, general outline and reference to particular charactristics and performance data, have been presented in the preceding papers, and the writer's present object is to bring out some of the high points of interest from an engineering and an economic standpoint that have developed during the operation of the dryer.

We have all been so accustomed to thinking that wherever water vapor is present, air is necessary to carry it away, and that where enormous quantities of water are evaporated from a sheet of paper, thousands of cubic feet of air must be circulated to remove the water vapor resulting from the evaporation, and it is exceedingly difficult for one to visualize the removal of such large quantities of water vapor without the use of air. Such is the case, however, with the Alexander electric dryer.

In a substantially closed chamber, radiant heat from open type electric heating elements falls upon the moving sheet uniformly covering and penetrating every part, raising the temperature of the incoming sheet to the point of evaporation and thereafter furnishing the latent heat of vaporization until all but the desired residual of water has been evaporated.

The heating elements operating at a temperature in excess of 1,000° F. maintain the temperature within the drying chamber well above 212° F., effectively preventing condensation or dripping. Inasmuch as substantially atmospheric pressure is maintained, the water vapor or steam emerging from the sheet at once becomes superheated and this superheated steam is capable of and does act as its own vehicle for its removal from the drying chamber through exhaust flues suitably arranged.

The drying chamber is made as nearly air-tight as possible, with the exception of slits at either end for the passage of the sheet into and out of the chamber.

No Air Required

It is interesting to observe that inasmuch as no air is required to carry out the moisture, no energy is lost in heating such air, and no power is required for operating blowers, etc., for ventilating purposes.

*Presented at the annual convention of the Technical Association of the Pulp and Paper Industry at the Waldorf-Astoria, New York City, February 3 to 5, 1925.

Inasmuch as steam only is removed from the drying chamber, with the exception of a small trace of air, this steam can readily be condensed in an economizer or condenser and practically all of the heat units be recovered for the performance of other useful work, and this recovery of heat can be made at temperatures of substantially 212° F.

Heat Recovery

Although a certain amount of recovery of heat can be made in systems employing air for carrying out the moisture liberated in drying paper, only a relatively small percentage

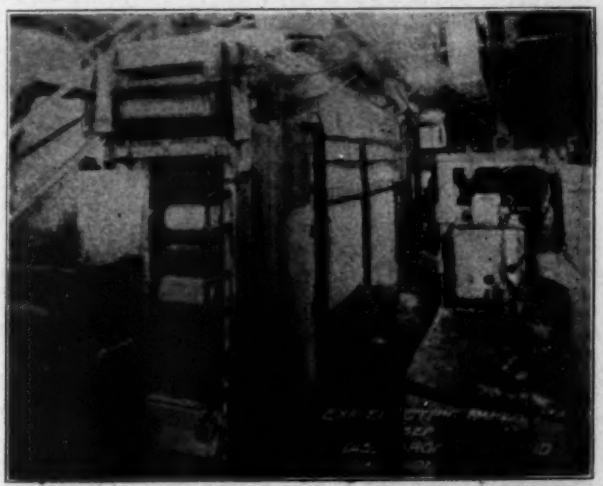


Fig. 2—Alexander Electric Paper Dryer—Experimental machine, showing discharge end

of the total heat energy in the air can be recovered for useful work on account of the considerable amount of energy contained in the air at temperatures below that at which it can be economically used and on account of the large volume of air to be handled.

The electric dryer in a way functions much like an elec-

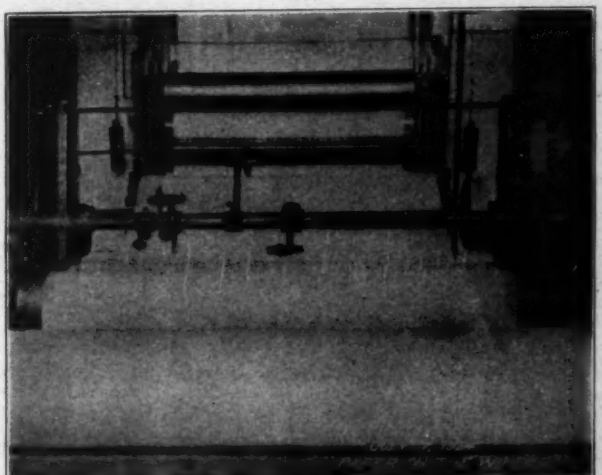


Fig. 4—Discharge end with calender and reel of Alexander Electric Paper Dryer, commercial machine

tric boiler, the sheet carries the water, the electric heating elements furnish the energy for its evaporation, the steam generated from the evaporation of the water from the sheet emerges from the dryer ready to do other useful work. In the case of the electric boiler, water is put into the boiler, electric energy is applied and steam emerges from the boiler ready to dry paper. In the case of the electric dryer, how-

ever, the paper has already been dried in the process of generating the steam, and the steam is available for other work, adding greatly to the efficiency of the thermal cycle. As will be seen, the work done in the electric dryer chamber is only one step in the complete use of electric energy put into the dryer.

The greatly increased strength of the sheet dried in the electric dryer is another notable factor which has already been pointed out. I attribute this increased strength largely to two factors; first, the more uniform of all fibers in the sheet from the surface to the center, and second, a drying cycle more nearly approaching the loft dried or air dried principle.

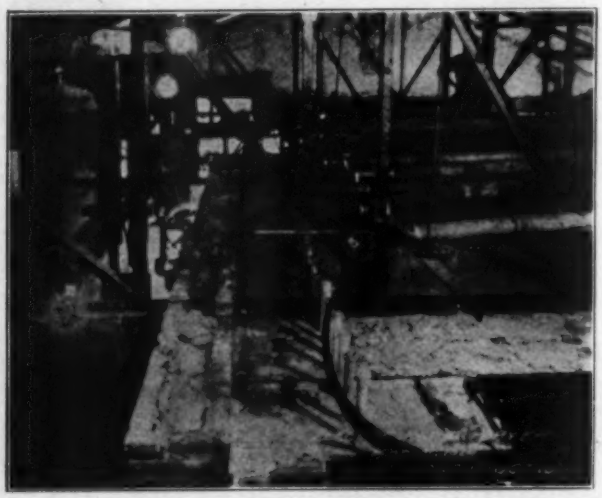


Fig. 5—Roof and wall construction of dryer chamber of Alexander Electric Paper Dryer, commercial machine

In the case of a sheet dried on the cylindrical drum dryer heated with steam, certain fibers in the surface of the sheet come in direct contact with the hot metallic surface, doubtless drying those surface fibers nearly or quite bone dry, whereas, those fibers in the center of the sheet are fairly moist, resulting in an average moisture content of a desired degree when the sheet leaves the dryer. The fact that any of the fibers are quite or nearly bone dry tends to make the sheet brash

Fig. 6—Drying chamber of Alexander Electric Paper Dryer under construction, showing steel frame in place to support guide rolls and heating elements. Commercial machine, 80 inches in width

and brittle and detracts from its strength and particularly from its folding strength. Furthermore, when these fibers in the surface of the sheet make contact with the hot metallic surface of the dryer drum there are doubtless miniature explosions caused by the rapid evaporation of the moisture in the cells at the surface tending to disrupt and blow apart the fiber formation and thereby tending to weaken the sheet.

Radiant Heat

In the case of the electric dryer, the sheet does not come in contact with any hot metallic surface. A considerable part of the heat received by the sheet is obtained in the form of radiant energy direct from the heating elements, and the greater part of the remaining heat received by the sheet comes indirectly from the wire on which it is carried through a film of steam and which in turn receives its heat from the heating elements in the form of radiant energy; the flow of heat, however, through the wire and steam to the sheet is so rapid that the wire does not rise in temperature very greatly above the temperature of the sheet itself, which, of course, cannot exceed 212° F. as long as it carries any substantial amount

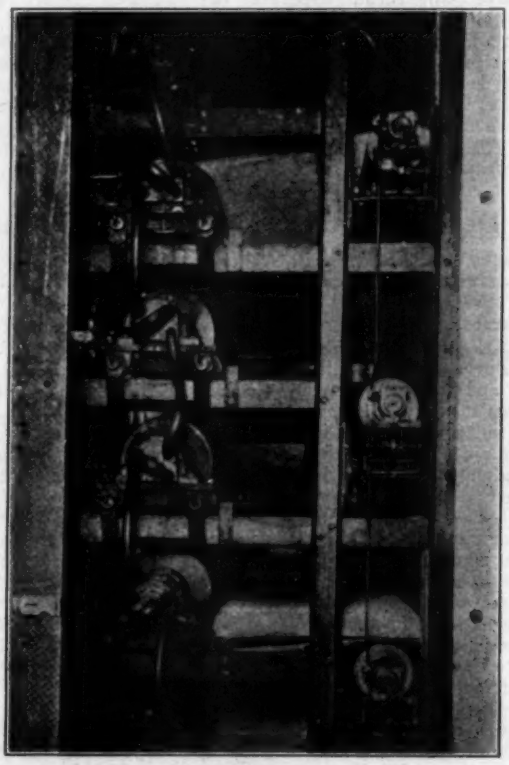


Fig. 7—Breast rolls and guide rolls of Alexander Electric Paper Dryer, showing water cooled bearings and automatic guiding equipment, commercial machine

of water. The wire, unlike the surface of a dryer drum, consists mostly of openings between the mesh and makes very slight contact with the sheet. It will, therefore, be seen that the sheet is heated uniformly, and although the rate of heat flow in the aggregate is relatively high on account of the uniformity, it is not high enough at any point to cause explosions of moisture particles or violent ebullition of the water within the sheet at any time or any point; furthermore, and perhaps most important of all, is the fact that none of the fibers in the sheet become overdried, but all of the fibers from the surface to the center are dried with substantial uniformity resulting in greatly increased strength of sheet.

Doubtless, the more uniform application of heat and the more uniform temperature at which the sheet is maintained at all times within safe limits contributes toward the better bonding of the fibers of the sheet with their natural adhesive properties than is possible in the case of a sheet dried on steam heated drum dryers where the sheet is constantly changing in temperature as it passes off and on to heated dryer rolls

and with the necessarily different temperature in different parts of the sheet.

The elimination of the use of air in the drying operation so greatly increases the overall efficiency that many mills who would not have thought it possible may afford to dry electrically.

Decreased Costs

There are many other substantial factors expected in favor of drying with the Alexander electric dryer, among which

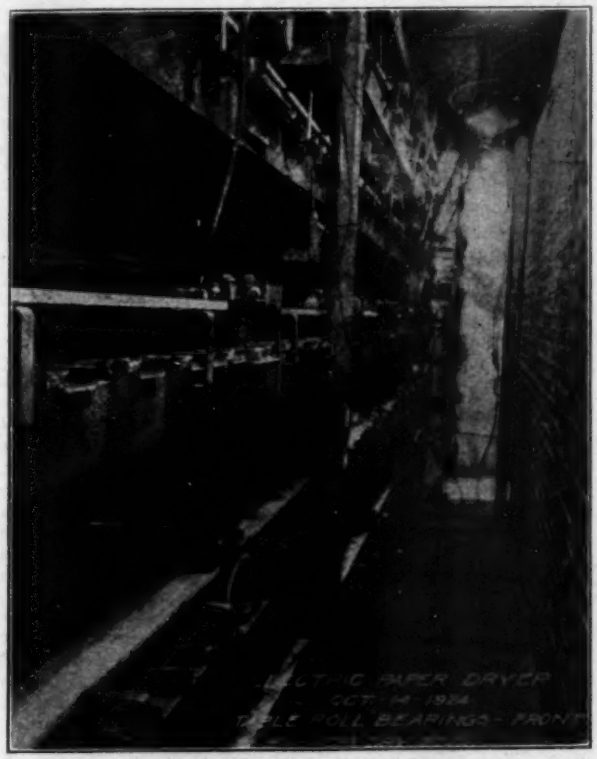


Fig. 8—Alexander Electric Paper Dryer, view taken inside the drying chamber, showing table roll bearings, paper carriers and air deflectors. Commercial machine

are greatly decreased cost of machine clothing made possible by the entire elimination of dryer canvas and substitution of dryer wires; greatly decreased power for driving the dryer section; greatly decreased maintenance expense, all of the large dryer gears, steam joints, etc., being eliminated: reduction in lubrication cost and practically entire elimination of paper break in the dryer section. In addition to this is the elimination of steam, moisture and dripping in the machine room, better working conditions, etc.

In the case of a new installation, there should not be lost sight of the fact that no steam boiler plant would be required for drying the paper, a large saving in capital expenditure.

This electrical dryer lends itself admirably to automatic control and drying can be accomplished with a uniformity difficult to obtain with other systems.

On account of the greatly increased strength of the sheet, doubtless great savings in the cost of the machine furnish will be found possible.

The following table gives approximate theoretical values as to energy required for drying with the Alexander electric dryer with various percentages of moisture content of the sheet. To obtain the actual energy required the overall efficiency will have to be considered.

Power Requirements

As the power requirements for drying paper with electric dryer, let us take a typical case. Assuming that the sheet enters the dryer containing 70 per cent moisture and at a temperature of 62° F., that the sheet comes out of the dryer containing 8 per cent moisture and at a temperature of 212° and further assuming that the steam evaporated from the sheet becomes superheated 200 degrees, or to an ultimate temperature of approximately 412° F., then the total energy theoretically required to this work, amounts to substantially 2589 B. T. U. or 0.76 Kw. hours equivalent electrical energy per pound of paper dried. This does not take into consideration any radiation losses or losses of any other kind, nor does it take into consideration any further use of the exhaust steam as a byproduct. In actual operation of the electric dryer at Port Edwards with substantially the above conditions of drying, we have gotten down to approximately 0.84 kilowatt hours per pound of paper dryer over long enough periods of time to conditions which can be obtained with this particular dryer. This is equivalent to approximately 90 per cent efficiency and includes all radiation losses from the outside of the dryer and also includes the heating of a certain amount of air which, in the case of this dryer, leaks into the dryer chamber on account of its not having been built tight enough originally to exclude all of the air. Only a very small amount of energy is lost by radiation from the dryer and most of this loss is represented by the energy required to heat the air which leaks into the dryer. This, with a tighter dryer structure, can be largely prevented, so that it is logical to expect a very high operating efficiency.

Thermal Conditions

In order now to visualize the true thermal conditions we should bear in mind that we are obtaining from the electric

TABLE SHOWING EFFECT OF VARYING PERCENTAGES OF MOISTURE IN SHEET ENTERING DRYER UPON THE THEORETICAL KW. HOUR PER POUND OF PAPER REQUIRED FOR DRYING

		Moisture in Sheet Entering Dryer				
		%	%	%	%	%
For 100 lbs. of Sheet Entering Dryer	Pounds of Water	75.0	72.5	70.0	68.0	65.0
	Pounds of Stock	75	72.5	70	68	65
	Pounds of Finished Paper	25	27.5	30	32	35
		27.2	29.9	32.6	34.8	38
For 100 lbs. of Sheet Leaving Dryer	Pounds of Stock	0.92	0.92	0.92	0.92	0.92
	Total Pounds of Water	2.76	2.43	2.15	1.95	1.71
	Pounds of Water Evaporated	2.68	2.35	2.07	1.87	1.63
	Pounds of Superheated Steam	2.68	2.35	2.07	1.87	1.63
150° x 0.5 x 0.92 lb. stock = B. T. U.		69	69	69	69	69
150° x 1.0 x lb. Water = B. T. U.		415	365	322	293	257
966 x lb. Water = B. T. U.		2,590	2,265	2,000	1,800	1,575
200° x 0.475 x lb. Steam = B. T. U.		255	234	198	178	155
Total B. T. U.		3,329	2,923	2,589	2,340	2,056
$\frac{\text{B. T. U.}}{3412}$ = Kw. Hr.		0.980	0.857	0.760	0.685	0.604

BASIS OF FOREGOING TABLE

8% Moisture in Finished Sheet.
200° Superheat of Steam (212°—412°)

150° F. Temperature Rise of Sheet (62°—112°)
Specific Heat of Stock—0.5
Specific Heat of Steam—0.475

dryer under the conditions outlined 2.07 lbs. of steam per pound of paper dried as a byproduct or approximately 2198 B. T. U. byproduct heat per pound of paper dried, which energy is available for other useful work. This heat energy

Fig. 9—Alexander Electric Paper Dryer commercial machine under construction. It shows wall of drying chamber and iron bus bars

is advisable for heating air or water for mill heating, process work or other purposes, and with suitable facilities this exhaust or byproduct steam can be used for drying paper. In

Fig. 10—Temperature control panels for Alexander Electric Paper Dryer, commercial machine

this connection two different methods immediately present themselves—one, to put this exhaust steam into the familiar drum dryer using an adequate vacuum system for the removal of the condensate and the other, to use heated air from an economizer in a paper drying machine designed for the purpose.

From these figures it will be seen that if full use could be made of the byproduct exhaust steam from the electric dryer, the electrical energy requirements per pound of paper for drying could be reduced at least one-third.

The relatively short time that the electric dryer has been in commercial productive use has demonstrated many pronounced advantages and merits, and has opened up a field of interesting possibilities which may mean much to the paper industry in economic development and technical progress.

Budgets and Business*

BY THOMAS J. BURKE, C. A., Secy.-Treas., Cost Assn. of the Paper Industry

THE particular business referred to in the title of this address, is the making of paper or pulp for profit, when possible. In every mill there are different department heads responsible for production, purchasing, selling and finances, and there is a direct head who has general supervision over these departmental heads. Perhaps in some cases two or more of these duties are combined in one individual, while in some larger organizations they may be split up among several individuals. However, no matter how small or large the organization may be, there undoubtedly exists an organization capable of preparing a budget, because there must be in the final analysis some one responsible for the primary functions. Most departmental heads and executives desire to give their best service to their businesses, and yet, we find from year to year, there is a regular stream of business undertakings that fail. Why is it?

A careful study and analysis has been made of these reasons, such as insufficient working capital or the tying up of too much capital in fixed assets, inefficient manufacturing methods, poor buying, or an inadequate selling organization, to mention a few of them. It is not exaggeration to say, that in every instance a properly constructed budget would have brought plainly before the chief executive facts concerning his business, which would have enlightened him regarding the causes for the failure to make profits, a good deal quicker than would have been possible without a budget and thus have forestalled the final crash. The main reason for this fact is that a budget is in reality a coordinator of business activities. In order to make up a budget, it is necessary to study carefully the underlying principles on which your business is founded. You must study particularly the correlation of the functional activities of the various departments. If it is possible to foretell with any degree of accuracy how much paper a mill can sell approximately within a given period, ahead, it should be possible in a properly balanced mill for a budget to be prepared which will enable the accounting department to make up a balance sheet, showing what the financial position of the business will be at the end of the period for which the sales have been estimated. Because it may not be possible to estimate sales very closely, there is no adequate reason why such an estimate should not be made. Things are done frequently in a mill, the results of which it may not be possible to estimate very accurately in advance. But I don't think I need emphasize this phase of the subject any further, because you are all aware of the success that has attended the installation of a budget system in the Government's business.

Savings Effected Through Budgetary Control

Over a billion dollars has been saved to the country during the past few years as a result of the adoption of budgetary control. As you know, in the case of the Government, this is nothing more nor less than stating in advance what each department is to be allowed for its expenses. In your case, as manufacturers, in order to know what you are going to spend it is necessary to know what you are likely to sell, hence the importance of being able to estimate your future sales correctly. The sales having been estimated, the costs may be estimated. There are of course a number of problems involved also in the estimating of the costs; the purchasing department, for instance, must study the market for the various raw materials that it will be necessary to purchase in order to make the paper, so that it can estimate the total cost of these materials; this of course applies also to supplies. Wages seem to be more or less fixed, and little difficulty need be experienced in estimating these. The overhead expenses of course can be compiled accurately. I refer to such matters as depreciation, insurance, taxes, and administrative cost, which are all known.

Now a word as to manufacturing costs. If the estimated

*Address given at Waldorf-Astoria Hotel, New York City, February 3, 1925, before Cost Association of the Paper Industry.

sales are about 80 or 85 percent of the maximum capacity of your machines, we may refer to your sales as representing the "normal" capacity of your machines. No particular problems should be experienced therefore, in making up such costs. The difficulty will arise when in times of depression you estimate that your sales will be below this normal capacity. How are you then to estimate with any degree of accuracy at what price it will be possible for you to sell your paper, and thus to ascertain what your total sales will be and your profit, if any? Of course, it will be necessary to do this in order to make up your budget and to prepare the advance balance sheet, that is to show what your financial position is likely to be at the end of the period, for which you have estimated your sales. In dealing with that question I would like to ask another. If you cannot foretell how much paper you are going to sell or at what price you are going to sell it, you must admit that you are taking chances with your capital. If you are taking chances with your capital you deserve a high return. Are you getting it? I think from what I have seen of many balance sheets that you are not. This being the case is it not a fair question to ask why every mill cannot operate on a budget, thereby reducing the risks without affecting the return on the capital invested.

My thought on this subject is, that the wise thing to do in times of depression (and may I say that the best time to think about these things is when you are in a period of good business, such as the present), is to use extra care in preparing your budget. We will suppose there is going to be a shortage of orders. We will suppose your estimated sales are going to be below the normal capacity of your machines, that your overhead costs are being distributed on an estimated normal production—so that the production necessary to take care of your sales will not in fact absorb all your overhead costs. The unabsorbed overhead costs will be a charge at the end of the period against the profit made, if any, on the products sold. However, by making up your costs on this basis you will make it possible to compare them month by month, so that although these overhead costs have eventually to come out of your profit and loss account anyway, they should not be charged into the costs of your product but be charged direct to profit and loss account as representing a loss due to slack business. Another reason is that in estimating your selling price you no doubt do give some consideration to cost, although of course, particularly in times of depression, such prices seldom have much relation to the cost of the product. You must, however, give some consideration to the cost, and granting this, such consideration is wasted if the costs are inflated with an incorrect proportion of your overhead expense, due to small production. In every adequate cost system there is a "stop loss" point, representing the point where it is advisable to shut down rather than to take further losses. We know that owing to the cost of shutting down a paper mill and breaking up an organization it is generally preferable to take a small loss. However, in estimating in the suppositious case mentioned above you must decide beforehand how much loss you intend to take, or whether you can break even, or even make a small profit with your decreased production. In any event the point I am making is that the real necessity for economy and efficiency in every department of the mill will be brought home to you and to every departmental head at the time the budget is prepared. This fact alone will strengthen your hand in dealing with a difficult situation. Instead of living in hopes you will be facing facts and be ready for emergencies.

The detail work done in compiling the budget will of necessity contain a list of the cost items in each department. Thus each departmental head will have an objective and you will be in a position to watch results from month to month and take action promptly whenever the necessity arises. The compilation of the budget also will of necessity force a decision in those cases where there is any doubt regarding the responsibility for certain activities.

A monthly meeting of the departmental heads presided over by the executive should be held to compare the actual with the budget figures. I would suggest that the budget should not be changed monthly unless very serious differences, obviously due to mistakes made in the beginning, are found. Careful notes should be made of all differences so that the next budget can be better prepared in the light of the experience gained.

My time is short and I cannot keep you any longer. Having, as I think, proved the advisability of working on a budget system in times of depression I have also proved the advisability of always making up a budget. If it is a good thing in bad times it is a good thing in good times, otherwise we must admit that we are in the class that is content to sit back and take things easily when times are good, instead of keeping our organizations in good fighting trim all the time.

I believe I am correct in saying that we are now fairly prosperous, and I believe that now is the time to put in a budget system so as to be prepared for anything that may come in the future. I will conclude by reading fourteen reasons why every business should have a budget:

The Budget

A well planned and ably directed budget has many advantages that accrue to the benefit of business:

1. It is an influence that makes for the most economical use of working capital, because it is planned with a view to utilizing plant facilities and current assets to the maximum of their potential capacity.

2. It prevents waste because it regulates the spending of money for a definite purpose and in accordance with appropriations that are established in the light of the best judgment of the executives of the business.

3. It definitely places the responsibility for each function of the business just where it belongs.

4. It is a factor that makes for co-ordination—it compels all departments of a business to co-operate toward attaining the results fixed by the budget.

5. It prevents undue optimism which often leads to overexpansion because it presents in cold figures the best judgment of executives who have committed themselves to the attainment of a definite business objective.

6. It acts as a safety signal for management because it indicates to what extent the actual results obtained from period to period, or from month to month vary from the planned budget; thus, it indicates when to proceed with caution and when to go safely ahead with manufacturing or merchandising expansion.

7. It is the most potent force in business for conservation of the resources of business, because it regulates the spending of money within the confines of income.

8. It is a means available to management for the determination of the cause and the effect of its sales, production and financial policies.

9. It compels management to study markets, products and service to the end that it may find ways and means for strengthening and enlarging the business.

10. It compels management to study and to plan for the most economical use of labor, material and expense.

11. It is the only means for predetermining when and to what extent financing will be necessary.

12. It makes business more interesting to management because it sets up a target to shoot at and provides a gauge for measuring the accuracy of the shot. In other words, it is a test of the ability of management to make things happen in accordance with a well-ordered plan.

13. Managements who have developed a well-ordered budget plan and operate accordingly find greater favor from their bankers and board of directors than those who are without it.

14. It compels management to fortify itself with adequate accounting, cost accounting and financial records.

If the foregoing fourteen reasons are logical it must necessarily follow that the budget in business is the greatest contribution toward the attainment of efficiency, and "efficiency" must be our watchword in the coming decade.

Artificial Pulpstones*

BY W. W. GREENWOOD
Research Laboratories, Norton Company

THE desirability of artificial pulpstone which would reduce logs to satisfactory groundwood with a good rate of production has been apparent to those interested in paper making for a long time. This casts no reflection on the sandstones now almost universally employed, because a uniform, properly seasoned stone containing as it does rounded sand grains is ideally suited for producing the long thin, well-frayed fibers necessary for satisfactory news stock. But like most rock products, natural pulpstones are subject to imperfections which in some cases are entirely hidden until the stone is put into service. Sandstones frequently are uneven in structure, having hard and soft spots, thus requiring constant attention in order that a uniform grade of pulp may be secured. Sandstones, because of their relatively low heat conductivity, sometimes spall or even break under sudden temperature changes. Any one who has had a satisfactory stone damaged by the careless use of shower-water will appreciate how easily a stone may be destroyed in this manner. Then again, the low tensile strength of sandstones as compared, for instance, with an artificially bonded product has practically restricted the speed and size of pulpstones to within rather narrow limits.

The Norton Segmental Pulpstone

The Norton segmental pulpstone offers a solution to most of these problems. It is composed of abrasive blocks which are fastened to a suitable cast iron drum or mandrel. This whole assembly is then mounted on the usual grinder shaft, using either keys or flanges for holding it in place. The crevices between the segments are filled with a special metal which melts at a low temperature and has a composition similar to a high grade babbitt, and thus an even surface with neither depressions nor ridges is presented to the logs during grinding. In their entirety the assembled segments act like any solid pulpstone.

The blocks or segments are composed of Crystolon abrasive bonded with a vitrified bond. Crystolon is Norton Company's brand name for the abrasive known chemically as silicon carbide. Its chemical formula is SiC, and its characteristics as an abrasive, aside from its ability to withstand high temperatures, are hardness and brittleness. The raw materials used in its production are silica sand and metallurgical coke. These materials, when heated to a high temperature in an electric furnace, react and produce the abrasive crystals. The crude abrasive ore from the furnaces is then sent to the abrasive mill where it is crushed, run over magnetic separators to remove iron compounds, and washed to remove dust. From this stage in the process it goes to the screening plant, where the abrasive grains are separated into various sizes on vibrating screens.

The grain sizes regularly produced are from No. 8 to 200 inclusive, each designation referring to the "mesh" of the screen through which the particular grain passes. For example, No. 30 (which is the grit in pulpstones used by some mills for news) is that which passes a screen having 30 apertures per linear inch, and is retained on a screen having 36 meshes per inch. To insure accurate grading, a rigid inspection of each keg of abrasive is made, and in the event of any being reported below the inspection standard, the keg is returned to be rescreened.

It has been found in artificial pulpstones that the grit or grain size has a marked effect on the length and quality of the wood fibers produced. Other things being equal, the finer the grit, the finer and shorter the groundwood fibers. Here is one feature which makes artificial pulpstones valuable. By their use the groundwood superintendent can forget one set of variables in the process. Once he has determined which grit size is best suited for the needs of his mill, he can specify it for all stones and be assured that variations from this standard will not occur, no matter how many stones he buys through any period of years.

It is the practice in the manufacture of artificial pulpstones to mix these abrasive grains with a cementing material called the bond. This bond is essentially a mixture of feldspars and clays. These ingredients are very finely ground and accurately weighed because on their specific composition depends, to some extent, the degree of hardness of the finished stone. For pulpstones, a suitable bond is very important, both in order that the stone may produce satisfactory groundwood and also that it may stand up under the severe conditions in the grinders. Lack of knowledge of a suitable bond for this operation has been largely responsible for the many failures of artificial pulpstones in other years.

This mixture of bond and abrasive is then molded into the segments making up the stone, dried and placed in large kilns for the purpose of vitrifying the bond. As no shaping of the segments is done after the firing, great care is required in setting in the kiln to prevent warping of cracking during this operation. The kilns are fired to a temperature sufficiently high to cause the bond to flow about the abrasive particles and vitrify. After burning, the kiln is sealed up and its contents allowed to cool slowly so that proper annealing of the bond may take place. When removed from the kiln, the bond has changed into a stony, porcelainlike mass, which is not affected by either heat or water and so is ideally suited for pulpstones. The tensile strength of the bonded segments is about 1013 pounds per square inch, making them approximately three times as strong as sandstone which has a tensile strength between 300 and 400 pounds per square inch.

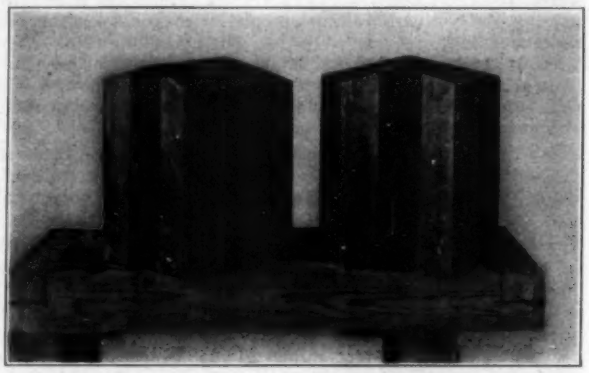


Fig. 1—Individual segments composing a Norton pulpstone showing babbitt shoes

Discussion of the Problem

Perhaps the chief limitation to this type of bond for use in pulpstones is that pieces of very great size cannot be made of it commercially, which will withstand the severe conditions in a grinder pit. It is for this reason that a segmental stone has been designed and in order that this may be clear it might be well to review the problem which the production of pulpstones presents to the abrasive wheel manufacturer. When the desirability of an artificial stone became apparent to us, the question of the quality of wood fibers which such a stone ought to give was first considered. It was recognized that the composition of the stone itself must be of such a character that proper fibers would result. Sand is ideally suited as an abrasive for this purpose but in bonding sand artificially either a cold set cement or one of the low fusing silicates (for example sodium silicate) is usually employed. Such bonds are more or less affected by the heat of grinding and it was felt that a bond would have to be developed which would be unaffected by either water, acid or heat. A bond of this character which will be inert to the action of water or heat, matures only at comparatively high temperatures; so high in fact that the sand grains shatter and a soft friable mass results. Therefore, in employing such a bond, it was also necessary to use an abrasive which would stand these temperatures.

Small stones were first constructed using different grit combinations and having a variety of bonds. These were tested in an experimental grinder which had been constructed by the Bureau of Tests of the International Paper Company.

*Presented at the annual convention of the Technical Association of the Pulp and Paper Industry at the Waldorf-Astoria, New York City, February 3 to 5, 1925.

In using this little grinder, temperatures, cylinder pressures and speeds were regulated to correspond with grinder room practices, and in this way a stone composition was developed, capable of producing satisfactory newsprint stock.

The next step was to adopt such a stone composition to the great sizes required by the paper industry. Large stones which were really composed of rings of Crystolon bonded material were assembled but in every case they broke, the reason being that the heat of grinding caused an expansion of the rings which in spite of the care taken in annealing the kiln resulted in cracking.

The only other practical way appeared to be to make stones which were composed of segments assembled around a drum. These segments could be made of the same grit and bond as the small satisfactory stone and any expansion as the result of grinding temperatures would be taken care of by the joints between the segments. By using such a design it was found that full sized stones could be constructed which would stand severe temperature changes without breaking. This in brief, presents our side of the problem and gives some of the reasons for the type of construction being used in the Norton stone.

The Assembly

Norton pulpstones consist of a large cast-iron mandrel or center which may be keyed to the grinder shaft. The photographs show the type of drum construction used when it is planned to key it to a shaft. If, however, it is preferable to use the ordinary flanges, this can easily be done and the whole assembled stone mounted in the same manner and with no more labor than a sandstone. Around this drum are assembled the abrasive segments which are held to it by clamps. To insure against loosening, each segment before it is mounted, is placed in a special fixture and a light babbitt shoe cast around its base. Examination of the three segments shown in the foreground of the picture will show how this is done. By such a procedure the segments can be made to fit perfectly to the drum and in tightening the clamps an even support throughout the entire length of the segment is assured.

Care has been taken in designing the segments so that there is presented to the log being ground as nearly an unbroken surface as is possible. The segments when placed around the drum are staggered so that the joints between them parallel to the axis of rotation extend only half way across the stone face. This prevents the possibility of wood shims catching between the segments and the finger plates of the grinder. At the center of the stone, the joints have been arranged in zigzag fashion to insure against the production of waste.

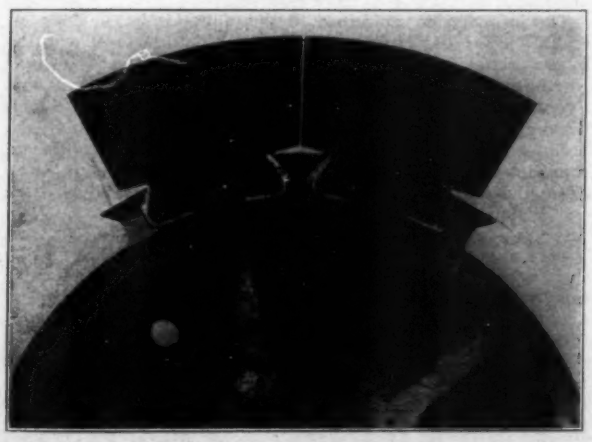


Fig. 2—Closeup of segments set in place on the drum before crevices between them have been filled with metal. Note loose and permanent keys for holding segments in place

This zigzag is enough off center so that the metal wears and avoids any danger of a "black streak" in the pulp.

The crevices between the segments are filled with a special metal of the nature of a hard babbitt. This metal was developed in the laboratories especially for this purpose. In attempting to find something suitable a great variety of materials were experimented with and discarded. These included a number of different types of both hot and sold setting cements which are found to be undesirable because they would not stand grinder temperatures without cracking. Various fibrous materials, such as wood, cellulose and leather were tried. We also experimented with rubber, vulcanized to different degrees of resiliency but without success. After investigating a number of metals having different physical and chemical properties, one was found which served the purpose nicely. Its characteristics are the ability to flow into very small crevices when hot and its resistance to wear. Although tough, it still has the property of hardness at grinding temperatures, so

Fig. 3—A partially assembled pulpstone

that it wears down at the same rate as the stone, thus preventing the formation of wood slivers and also giving proper protection to the edges of the segments from undue wear. This metal is anchored sufficiently by the design of the segments so that it does not crawl during grinding. It expands slightly as the stone heats up thus keeping the spaces between the segments closed at all times.

From this résumé of the problem it will be seen that the construction of this stone is the result of considerable thought and that it involves a number of novel features made necessary by the problem itself. These features have been fully protected by the patents both granted and pending.

Theory of the Grinding Action

The question of the grinding action of an artificial pulpstone as compared with a standstone is one of interest. As nearly as can be determined both types of stones behave in practically the same manner as far as quality of stock is concerned. There are, however, certain differences in the way they grind which it may be of value to discuss. The production of ground wood by pulpstones is probably not so much a grinding operation as it is one in which the wood fibres are rubbed of the log. If it were strictly grinding most of the finished material would be flour; but actually what is desired are long, thin and flexible fibers which lock together and give strength to the sheet. To produce these without too much cutting into fine waste, is the function of the stone when running efficiently. When sandstones are employed for this purpose it is common practice to put them in condition for securing the best results by burring at frequent intervals. There seem to be two important reasons for the use of a burr with standstones. One is perhaps to make the stone produce a different type of pulp than it would if its natural grit only were in contact with the log. A stone surface suitable for grind pulp for wall board and various book papers might not be suitable for making a light weight manila or newsprint sheet. Since the grit in many sandstones is not coarse enough to produce the long coarse fibers for news, it is only by giving the stone an apparently coarse grit size that a suitable product will result. Such a stone will continue to produce these longer fibers only while the pattern which has been applied with a burr lasts, and as the pattern wears off and the natural grit comes more and more into play, a product results corresponding to the true

character of the stone. A coarse sandstone needs little if any burring and will still produce longer fibers than will a fine stone after the pattern has been worn away. Such natural stones, however, are rather rare.

Another reason for the use of a burr with sandstones is to provide grooves in the stone face which act as paths by which the fibers can leave it. As the stone revolves the fibers from the first pocket may tend to be rubbed to a finer condition by the friction between the stone and the logs in the other two pockets. The grooves or depressions put in by the burr probably allow for a little clearance so that the fibers are not subjected to so great a rubbing action.

In the case of the Norton stone, it is possible to use an abrasive grit coarse enough so that the stone face, without burring, acts in the same manner as does a sandstone properly

Fig. 4—Norton pulpstones ready for installation

burred. In the production of news for instance, this is what happens if an artificial stone with No. 24 grit is used. In this case the artificial stone with no burring will produce the fibers which a properly burred sandstone produces. The individual coarse grits, or abrasive grains, act like groups or clumps of sand to rub the fibers from the log. The spaces between these abrasive particles act like the grooves in a burred sandstone to prevent the wood fibers being refined too much as they pass through the other pockets.

Such a stone, however, has one disadvantage. It will produce one type of long fiber only and it would perhaps not be so suitable in the event that it was necessary to grind a "slow" stock for, let us say, half-tone paper. In practice, therefore, we have found it better to supply stones of a little finer grit, say about No. 30, and rely more upon the burr for quality. Such a stone may be a little more universally used since the type of fiber which it produces is largely dependent upon the burring. With a finer grit stone, different types of fiber can be produced with the same stone by using different burrs. This is particularly important to mills having a varied output or to those so situated that it is necessary for them to make "freer" stock in winter than in summer.

It would be very nice if we could report that the Norton stone requires less horsepower per ton and produces more groundwood in a given time than does the sandstone. And such would be the case if the operation were strictly one of grinding. But unfortunately for us the quality of fibers desired can only be secured when they are rubbed from the log and it has been found that when this is done to best advantage with a sandstone, the horsepower per ton is practically a constant. We find that this same condition holds with the artificial stone. To make it work to best advantage, as far as quality is concerned, it is necessary to run it a little dull and therefore, it consumes about the same horsepower per ton as does a sandstone. The artificial stone can be sharpened so that it cuts almost too fast for the handling of one grinder by an operator, but under such conditions, the product in the pit is largely composed of "hay" or "toothpicks."

In practice it has been found to be better to burr the stone much more lightly than is usually done with sandstones. Since the artificial stone is somewhat harder than the sandstones it tends to hold the pattern put on by a burr for a longer period of time in spite of this lighter burring. Roughly, an artificial stone has to be burred only about a third as frequently as do the sandstones; but this condition, of course, varies with different mills. The artificial stone will take and hold any style of burr in the same manner as does a sandstone. The burrs do not break the edges of the segment to any extent and examination of the babbitt on a freshly burred stone, shows that the pattern has extended across it.

Advantages and Economics of the Norton Stone

Norton pulpstones have certain advantages over sandstones apart from the fact that they produce uniformly satisfactory groundwood. They are even in structure throughout; hard or soft spots, open places, or seams will not appear after the stone has been put into operation. They will withstand severe temperature changes without spalling. Their grit is uniform and they will always have the same degree of hardness. This last feature is especially important in standardizing the conditions of groundwood production. Since their manufacture can be controlled within close limits, these stones may be secured at any time without trouble or delay. This is an advantage which should appeal particularly to those using the large stones for the magazine type of grinder. Norton pulpstones do not have to be seasoned, another interesting feature. The economies which the use of such stones should bring about are many. In the first place the stone cost per ton of groundwood will probably be lower than a most favorable sandstone cost. The reason for this is that although the initial cost is higher, the life of the stone is so much longer than that of the sandstone that when the cost is distributed over its entire production, it is found to be extremely low. As the development of this stone is of comparatively recent date, it is impossible to state definitely what the life will be since no stones have worn out in service. But based on the wear of several stones now in operation, it is probable that the life of a stone in the ordinary three pocket grinder will be from our to five years. Because of this longer life, less storage space will be required since fewer stones will be used. Labor costs of installation should be cut considerably since they will occur at less frequent intervals. The fact that the stones do not require seasoning is another characteristic which will cut down the cost of their use. No capital needs to be tied up in these stones for they can be secured so easily that only a small stock need be carried on hand at the mill.

Installations

The information contained in this paper is based upon installations at the Hudson River and Montague mills of the International Paper Company and also upon those at the Great Northern Paper Company and the Pejepscot Paper Company. Exact figures as to production, horsepower per ton of groundwood and life of the stone have purposely been omitted first, because these vary greatly between mills owing to different conditions in handling stones and second, because in some cases these data have not been determined acurately as yet.

Future Developments

As has been stated before, the production of such stones by the Norton Company is of recent development and so it is of interest to theorize a little as to changes which they may bring about in the paper industry. Tests conducted in our laboratories upon the segments themselves indicate that they are sufficiently strong so that stones composed of them may be run at somewhat higher speeds than is customary with sandstones. Segments corresponding to a 54x27 inch pulpstone have been speeded up to 450 revolutions per minute with no breakage occurring. This indicates that with an artificial stone the usual speed of from 220 to 240 revolutions could be increased to at least 300 revolutions with safety. Just what the effect on groundwood quality would be of increasing the speed, is not known but it seems reasonable to suppose that a greater production per unit of time could be obtained in this way.

Another possible change in the industry is that of being able to increase the size of stones without sacrificing safety. Within reason, a segmental stone could be made of almost

any size, a condition which should be of interest to manufacturers of grinders.

It is also possible that an artificial stone using a different type of abrasive would be as efficient as the Crystolon stone. The Norton Company produces an aluminious abrasive which is marketed under the name of Alundum. This is also an electric furnace product, the abrasive grains being somewhat tougher than Crystolon grain. Alundum grains are also more equidimensional and less sharp at their edges than are Crystolon grains. Pulpstones containing this type of abrasive have not been tried as yet because their construction offers a number of problems which have not been thoroughly investigated. It is possible that an experimental one would prove of interest.

It will be seen in this paper that the problem of standardizing groundwood production by using artificial stones is one filled with interest. A great deal of study has been given to it, and as has been indicated there is still much work to be done. What we have attempted to point out in this brief summary of our work is that a satisfactory pulpstone has been developed. This is proved by the fact that stones in a number of mills have been in operation for many months and that satisfactory results are being obtained by their use.

Forest Conditions in Eastern Canada in Relation to the Pulp and Paper Industry*

By DR. C. D. HOWE
University of Toronto

WHEN your genial and efficient Secretary offered me the great privilege of addressing the Woodlands Section of the American Paper and Pulp Association as its members were gathered around the festive board—paper board, I hope—he told me that I could talk upon any subject I wished if I included the forest conditions of Canada in relation to the pulp and paper industry and—most important of all—if I didn't talk too long.

These two conditions are practically inhibitive, or perhaps prohibitive is the better term to use in this country. In the time alloted I can not hope to give you a complete picture of the situation. I shall attempt only to leave with you a few ideas more or less at random. On second thought, I will say, if I leave with you one definite impression, I shall consider my mission successful.

The commercial forest area of eastern Canada chiefly lies within the St. Lawrence River drainage basin and in the valleys of the rivers that flow directly into the ocean from the Maritime provinces. The forest area of this region comprises some 180,000 square miles. The forest is of the mixed type of conifers and hardwoods. They are much the same composition and present much the same problems as do your Adirondack forests. The St. Lawrence drainage basin and the Maritime provinces have furnished all the saw logs and practically all the pulpwood up to 10 or 15 years ago, and they have yielded billions of dollars in terms of value in forest products to the Canadian people. Much the greater portion has been cut over at least twice in the past 75 years, first for pine and spruce saw logs and later for pulpwood. The more accessible areas have been cut over three or four times within the same period; each time the harvest was from virgin surplus and did not represent the accumulated growth during the interval between the cuttings, as is often erroneously maintained by the operators. In the more southern portion of the region under discussion the hardwoods usually predominated in the mixed type under the virgin conditions. Only the conifers were removed, and the result is that the hardwoods dominate the forest more than ever before. Beneath the hardwoods, however, the spruce regeneration is fairly abundant, but as a rule is hopelessly suppressed. The balsam fir regeneration is excessively abundant; much of it is suppressed, but it pushes its way into the crown cover to a considerable extent. Unfortunately, the hardwoods over-topping and over-shading the conifers are so far removed from the markets that they are not merchantable under present conditions. Otherwise, these areas might again furnish extensive supplies of pulpwood material. The conditions, however, are improving with the rising price of stumpage. On certain restricted areas the hardwoods are being cut with profit and the coniferous growth is being given an opportunity to develop. It will probably be a long time, however, before such operations become general enough to bring any considerable quantities of pulpwood from this source into the market.

About one-half the forested area in the regions of which I am speaking has been burned in the past 100 years; the total burned areas comprising some 65 million areas. About 20 per cent of the originally burned areas have been burned several times and lie unproductive today and they will remain so for a great many years unless artificially planted to commercial species. In the neighborhood of 60 per cent of the old burns are scatteringly restocked with coniferous species, but not in sufficient quantities to be potentially commercial. They will need to be reinforced by planting or else allow nature a hundred years or more to restock them in her own leisurely manner. Approximately 20 per cent of the old burns are restocked in potentially commercial quantities with young conifers in which balsam leads, then jack pine and white pine with spruce in the rear. The proportion may seem small, as it is, but the total area of such young growth forests is very large and it forms a very valuable asset for the future if adequately protected from fire and allowed to reach commercial maturity.

The principal pulpwood operations in eastern Canada are to be found in the very headquarters of the streams flowing into the St. Lawrence River and those flowing into Hudson Bay. In other words, they are along the height of land throughout Ontario and Quebec. A number of mills are located on the Hudson Bay side. For some of the older established mills, the pulpwood is brought by rail or water for a distance of over 200 miles. We speak of the forest as coniferous, but there is considerable admixture of poplar and birch. Pure stands of jack pine also cover extensive areas. The pulpwood forests as to composition are about two-thirds spruce and one-third balsam fir. The spruce is small compared with that farther south and much of it grows under swampy conditions. The forests are cut practically clean. While the operations in that region are too young as yet to predict the character of the future forest with accuracy, all the preliminary conditions point to the dominance of balsam fir.

So much for a hasty sketch of the forest conditions in eastern Canada. Now let us turn for a moment to the administration of the forest lands. Over eighty per cent of the timberland of Canada is owned by the people, or, as we say, it belongs to the Crown.

Administration of Forest Lands

The Dominion and the various provincial governments by tender or by public auction sell the right to cut timber. The purchaser of such rights pay a certain sum, called a bonus, for the standing timber and in addition he pays a fixed rate, called dues or royalty, per thousand board feet or per cord, for what he actually cuts. The amount of bonus naturally depends on the quality of the timber and its accessibility. As high as $20 per thousand feet, Doyle scale, has been paid for white pine. The dues in each province vary with the different classes of timber, and these levied on the same class of timber vary, in the different provinces, from fifty cents to $3.50 per thousand board feet, and from ten cents to $1.50 a cord for pulpwood. In addition to the above, the operator pays an annual ground rent for the use of the land, in most cases at the rate of one cent per acre, and is usually taxed at the rate of one cent per acre for fire protection.

The gross revenues derived from the forests total for the whole country about twelve million dollars a year.

As you know, the pulp and paper industry in Canada is the product of the past quarter century. In that time it has grown to be the largest manufacturing industry in the Dominion. The making of pulp paper with its associated activities creates wealth to the extent of about a quarter billion dollars each year. The industry has produced more wealth for the country in the past three years than all the gold mines in the Dominion since it was established nearly sixty years ago. In fact, the value of the pulp and paper products in a year and a half equals the value of all the minerals, including stone and

* Address before the Woodlands Section of the American Paper and Pulp Association, at the Waldorf-Astoria, New York City, February 4, 1925.

clay products, taken from the earth in one year. The development of the pulp and paper industry in Canada is a great industrial romance.

There are certain aspects of the situation, however, that require careful consideration. For example, newsprint production is increasing more rapidly in Canada than the market is expanding. In the year 1924, the daily capacity of the mills was nearly 500 tons greater than the previous year and new installations in 1925 promise at least 350 tons daily capacity over that of 1924. If the market contracts or even remains stationary, overproduction is inevitable. This has already expressed itself in reduced working time and reduced production in relation to the potential capacity of the mills. More mills, more machines, but relatively less production, yet much of the overhead goes on and interest on bond issues keeps on accumulating and the supply of spruce very rapidly decreasing.

That is the present situation. I am not a business man. I am only a university professor, but it seems to me a great deal in the situation of the pulp and paper industry in Canada is illogical and unbusiness-like. The operator maintains that he cannot submit to the inposition of cutting regulations for the purpose of maintaining a continuous supply of raw matrials because they would increase his cost of production to such an extent that he could not bear the burden, together with his taxes, high cost of labor and materials and interest obligations. Yet in spite of this argument he keeps on erecting new mills and installing new machines in his old mills. He does not do these things as a rule from profits accrued; he borrows the money, so increases his obligations, and he has done these things in the past few years on a stationary, if not a declining market.

I sometimes wonder if there are not too many promoters in our pulp and paper industry—who reap paper profits—by paper I do not mean newsprint—and who in the long run do more harm than good to the already established industries. Standing as I am before a company of business men, I submit, that the country is best served in the long run that builds up its manufacturing industries, slowly and permanently in the proper relation to the actual market conditions and in proper relation to the supply of its raw materials. Get rich schemes are poor investments for any country. You see, not being a business man, I can say things that a business man perhaps would not care to say.

I will say another thing. Most of the promoters come from the United States and their profits are chiefly spent in your country rather than in Canada. You see, being a naturalized Canadian from the United States, I can say things that a born Canadian would not say. The Canadians are a very polite and considerate people. I think they are sometimes more polite and considerate than they should be from the standpoint of their own interests.

Now, I shall make a statement that may startle you. So long as the present conditions hold with reference to the treatment of our forest lands, we should not encurage the establishment of any more large pulp and papermills in eastern Canada. The mills already established will need all the accessible spruce pulpwood now standing in our eastern forests if they are to continue at their present capacity for a length of time commensurate with the principles of sound investment. The mills for the most part are already geographically distributed so they can use the available supplies without meeting prohibitive costs of production.

If you discuss this statement afterwards, please, bear in mind that I referred only to spruce pulpwood and to present treatment of the forests. We have enormous quantities of young growth balsam fir in eastern Canada which can be brought into extensive and profitable use only under certain cutting regulations which do not at present exist. And again, we have enormous quantities of jack pine on the old burned areas that may be used for newsprint in the not distant future as a matter of necessity. We also have enormous quantities of birch and poplar, whose extensive use for paper in the future is not beyond the realm of probability. The supply of spruce, however, on the basis of present day requirements is limited and, as you know there is no better wood on the continent for pulp and paper purposes than the slow-growing Canadian spruce. The present supply of spruce is being rapidly exhausted and there is no hope of an adequate future supply under the present cutting regulations. These are the two conditions that make the establishment of new spruce-using industries unadvisable in eastern Canada. The first condition, that of rapidly diminishing supplies, cannot now be remedied on an equitable basis, but the second condition, the absence of adequate on-coming future supplies, can be remedied by the intelligent application of cutting regulations and the management of the forest lands on the basis of forest cropping and continuous production.

You in the United States, who assist in the direction of many of our pulp and paper mills, you who have loaned your money for their development, can help to stablize the industry and place it on a permanently enduring basis by using your influence to create conditions that will allow the application of cutting regulations to insure continuous production of spruce in the forest. The proper management of our forests is a very delicate and complex problem. It must be worked out on a basis equitable to the owner, in this case the people, and to the operator alike. It means concessions from both sides; on the one side perhaps the reduction of taxes and the assurance of an administrative policy of long duration; on the other side, the foregoing, a portion of the immediate revenues in return for the sustained property of the wood-using industries.

I wish you would look for a moment at the map of eastern Canada. Note the great river system extending inland as navigable water to a distance of 2,000 miles. The straight line projection from the Coast to the interior is 1200 miles. Note the numerous rivers flowing into it from the north. Some of them are great river systems in themselves, having drainage basins as large as many of the rivers east of the Appalachian mountains in the United States. The rivers are abundantly supplied with waterpower. Over 2,500,000 horse power are already developed, and 12,000,000 additional horse power of water remain to be developed in eastern Canada. No country in the world has such a large forest area, so near large populations, so accessible to the markets as eastern Canada. Here is the region of all the world to develop an administrative policy of continuous production of forest wealth. The people of the United States have already invested their money in our forest industries by the hundred millions. When our forests are placed on the basis of a sustained yield, they can materially increase their investments with entire safety. We will furnish cheap power and efficient labor; we will manufacture the wood ourselves and sell you the finished products.

Nature in the distribution of climate, in the formation of soils, in the disposition of her water ways and waterpowers has predetermined that Canada in order to reach the full stature of her industrial possibilities should always be very largely concerned with the raising of forest crops for the markets of the world.

We as foresters and I believe all public spirited men look forward to the time when the Dominion will reach this ideal in regard to her forest wealth. Canada has developed more in the past twenty-five years than in any previous century. Her mining resources have hardly been scratched and she has not reached one quarter of her agricultural possibilities. There are still vast underdeveloped resources and the future is very bright indeed and as I say, the forests will continue to play a very important part in Canada's industrial development.

Sale of Canadian Pulp Wood Land Announced

A recent issue of the "Daily Telegraph" states: "To encourage the development of the paper and pulp industry in Western Canada, the Federal Department of Lands is to sell by auction 40,000 square miles of Manitoba pulp wood land. The limits, which run along the east side of Lake Winnipeg, constitute practically all the pulp wood in the province. Under the terms of the sale the purchaser will be required to build within one year a pulp and paper mill costing not less than £400,000, with a daily capacity of 100 tons of newsprint paper, but will be entitled to cut 3,000,000 cords of spruce pulp wood.

"In the first nine months of 1924 the Canadian newsprint industry was within 85,000 tons of the United States output. Since 1920 Canada's production has shown a steady increase, while that of the United States has declined."

Northern New York News

February 2, 1925

Annual Meetings

J. J. Warren was elected president and treasurer of the Harmon Paper Co. of Brownville, at the annual meeting of stockholders and directors. The other officers elected were: R. T. Warren, assistant treasurer; R. E. Skinner, secretary; F. M. Boyer, assistant secretary. The board of directors is composed of the officers. All were re-elected.

All officers and directors of the Warren Parchment Company of Dexter were re-elected as follows: President and treasurer, J. J. Warren; secretary, F. M. Boyer; assistant treasurer and manager, D. F. Warren; directors in addition to the officers, Isaac Gilman and R. T. Warren.

Carlisle Group Elections.—The annual meetings of the Carlisle group of paper companies and affiliated interests were held at the offices of the companies in Watertown. The following are the officers and directors of the St. Regis Paper Company: Fred L. Carlisle, president; Alvah Miller, D. M. Anderson, John J. Warren, R. B. Maltby, H. E. Machold and Frank A. Empsall, vice presidents; Carl B. Martin, secretary-treasurer; R. K. Ferguson, assistant secretary-treasurer; C. T. Jewell, assistant treasurer and general manager; F. L. Carlisle, F. A. Empsall, D. M. Anderson, Jonathan Bulkley, R. B. Maltby, Adolph J. Mollenhauer, William K. Dick, John J. Warren, Alvah Miller, John N. Carlisle, D. C. Middleton and Charles E. Norris, directors. Mr. Norris, an attorney of Carthage, succeeds the late C. C. Burns of the board of directors.

The officers of the Hanna Paper Company are: F. L. Carlisle, president; R. B. Maltby, D. M. Anderson, H. E. Machold, vice presidents; C. B. Martin, secretary-treasurer; R. K. Ferguson, assistant secretary treasurer; C. T. Jewell, assistant-treasurer and general manager. The directorate is the same as the officers, with the addition of Mark S. Wilder.

The Power Corporation of New York, the consolidated power interests which furnish power to the Carlisle group elected the following officers and directors: John N. Carlisle, president; D. M. Anders, H. G. Davis and W. P. Creager, vice-presidents; R. B. Maltby, vice president, secretary and assistant treasurer; F. A. Rogers, treasurer; C. B. Martin, assistant secretary-treasurer; R. K. Ferguson, assistant secretary-treasurer; D. M. Anderson, Jonathan Bulkley, R. K. Ferguson, Floyd L. Carlisle, John N. Carlisle, W. P. Creager, W. K. Dick, F. A. Empsall, J. J. Warren, R. B. Maltby, D. C. Middleton, Alvah Miller, J. Adolph Mollenhauer, Thomas J. Walsh, directors, re-elected. In addition to these the following were added to the board: Harry S. Lewis of Beaver Falls, J. F. Schoellkopf, jr., of Niagara Falls, Fred D. Corey of Buffalo, Harry A. Furman of Schenectady and Mark S. Wilder of Watertown.

The Norwood & St Lawrence railroad elected the following officers and directors: F. L. Carlisle, president; R. B. Maltby, vice-president and treasurer; D. M. Anderson, vice-president; C. B. Martin, secretary; W. K. Dick, John N. Carlisle, H. E. Machold, C. E. Norris and J. A. Remington, directors.

The naming of Fred D. Corey, president of the Niagara, Lockport & Ontario Paper Co. and J. F. Schoellkpof, jr., to the directorate of the Power Corporation of New York is another link in the chain between the Carlisle group and the Niagara group of power interests. Floyd L. Carlisle was also elected a director of the Niagara, Lockport & Ontario Co. The Carlisle interests have already invaded Oswego and the connecting ends between the two companies will be completed soon, thus enabling an interchange of power between two big groups.

Carl B. Martin, secretary-treasurer of the St. Regis Paper Co. was also elected a director of the St. Regis Paper Co. of Canada, which represents the Canadian end of the Carlisle interests..

J. Reginald Newton of Watertown, son of the late James R. Newton, of the Newton Falls Paper Co., and Mrs. Lucy Cobb Hill, of New York, were married in Stamford, Conn., Dec. 31. Mr. Newton is at the head of the newsprint department of Johansen, Wales & Sparre, 16 East 41st street, New York. His bride is a daughter of the late John Blackwell Cobb, former president of the American Tobacco Company.

Krockenburg Leaves Hanna Co.

Joseph Krockenberg, for nearly two years general superintendent of the Hanna Paper Co. mills, has resigned his position with that concern to become general superintendent of the Oswegatchie Paper Company at Natural Dam. Mr. Krockenberg, who is one of the best known paper mill men in this section, succeeds John Carroll, resigned. The Oswegatchie mill, which is owned principally by Watertown capital, was built about two years ago following the fire which destroyed a large paper mill on the same site. Mr. Krockenberg was for three years general superintendent of the St. Regis Paper Co. mill at Deferiet. He left that concern but returned two years ago to take charge of the Hanna mill which is controlled by the same interests. He had charge of the Hanna mills at Norfolk, Raymondville and East Norfolk.

The machine and repair shop of the International Paper Co. at the Sherman Island hydro-electric plant, six miles north of Glens Falls, on the Hudson river, was destroyed by fire early in January with a loss of $50,000.

C. Lucille Tanner, secretary of the Extension Department of the College of Forestry, Syracuse University, has resigned to accept a position with the import committee of the American Paper Industry in New York.

Forestry Doings in State

The exceptionally heavy and early snowfall resulted in the opening of the pulp woods camp earlier than usual. The Racquette River Paper Co. opened two big camps at Derrick in the Adirondacks to cut several thousand cords of pulp wood.

Stanley H. Sisson and Donald P. White of Potsdam purchased what is known as the Cutting block in the town of Hopkinton, consisting of 2,500 acres. The entire tract will be lumbered, the pulpwood having been repurchased by the Racquette River Paper Co. The Cutting tract is one of the few remaining tracts of virgin timber in the Adirondacks not on the state preserves.

The board of supervisors of St. Lawrence county voted to reforest all the lands owned by the county. There are large tracts in the county which have reverted for unpaid taxes. The board recommends that private land owners take similar steps. There are 368,698 acres of land in St. Lawrence county available for reforesting. Individual land owners have already reforested 3,855 acres, or approximately 3,855,000 trees. Franklin county supervisors have also ordered 25,000 trees to be used for reforesting. Last year more than half a million trees were planted in Franklin county.

The special tax committee of the New York state legislature has reported that it would be impossible to reduce the tax burden on forests without increasing it on other rural occupations.

The state nurseries at Lowville and Lake Clear expect to ship between 3,000,000 and 4,000,000 trees this year. The Lowville nursery already has on hand 6,500,000 year old trees which will be available for transplanting in two years. Orders for this year exceeded those for a year ago by 2,000,000 trees.

A 15,000 H. P. hydro-electric plant, costing $1,000,000 will be built at Deferiet, the site of the St. Regis Paper Co., as soon as the spring freshets are over. The dam of the St. Regis Co. will be a part of the system. Most of the power generated will be used by the St. Regis Paper Co., and the remainder will be tied in with the Northern New York Utilities. The project will be built by the Power Corporation of New York, one of the Carlisle group.

Since the purchase of the St. Regis Paper Co. water power a few years ago, the Power Corporation leased the hydraulic power to the paper company. The present plan calls for the conversion of the hydraulic plant to a hydro-electric plant.

During the last six months, the paper company has been installing electric grinders, and will continue the installation until the plant is completely equipped. This will be done about June. During the period that the new hydro-electric

development plant is being constructed, electric power will be furnished by the Northern New York Utilities. The installation of the electric equipment in the St. Regis plants is costing between $200,000 and $300,000, but the company feels that the expense is warranted in that it insures the mill against shut downs due to low water.

The Eastern Paper Sales Corporation, having offices in the Grand Central Terminal, New York, has been appointed sole selling agent of the Oswegatchie Paper Co., of Watertown. Samuel B. Wardwell, president of the Oswegatchie Paper Co., is vice-president of the Eastern Paper Sales Corporation.

With the increase in the price of rags during recent months, an increase in the price of bond papers is looked for in local circles. Newsprint contracts are practically fixed for the year or for at least the quarter, but dealers announce that mills manufacturing bond, ledger or writing paper, are withdrawing their prices from the market, such withdrawals being usually followed by advances. Prices in some grades are expected to advance as much as three cents a pound. Knowlton Bros., manufacturers of special grades of paper, say that they are obliged to pay as high as 16 cents a pound for some grades of rags.

The Dexter & Northern Railroad Co., controlled by the Dexter Sulphite Pulp & Paper Co., has filed a petition with the public service commission, asking permission to abandon the road as a public carrier. The petition states that the net operating loss in six years has been $7,583. No opposition to the abandonment has been filed.

International Brotherhood Annual Meeting Abandoned

By a vote of three to one, local unions of the International Brotherhood of Paper Makers, decided against holding the annual meeting of the Brotherhood in 1925. During the latter part of December, a letter was sent to all the locals, calling attention to the financial condition of the union, and requesting an expression as to whether the convention should be held, or the money thus saved should be spent for organization work. It was originally intended to hold the convention during the first week in March.

The Executive Committee of the International Brotherhood met in Albany, following the referendum and decided to spend the money which would ordinarily be expended for the convention, in a campaign for more members. It was pointed out that while the newsprint branch of the industry was nearly a hundred per cent unionized, only about one-fifth of the men employed in the other branches of the industry, such as those working on coated or book papers were organized.

The tangled affairs of the Brotherhood have been straightened out during the last few days, when Dominick McDermott of Bellows Falls, Vt., former treasurer, turned over to Archibald Hook, of Chicago, $18,000 in cash as well as certain bonds, which he had been holding until the Carey matter was adjusted.

Fred H. Fuller, formerly connected with the Carthage Sulphite Company, has accepted a position as vice-president and general manager of the Lewis River Pulp and Paper Co., at Portland, Ore. Mr. Fuller holds a number of important patents on paper making machines. About a year ago he went to Washington to become general manager of the Columbia River Paper Company.

J. T. Carey Abandons Legal Fight

Jeremiah T. Carey, of Albany, for many years president of the International Brotherhood of Paper Makers, announces that he will make no further legal fight to regain the place. Mr. Carey sought through the courts to have declared void the election of M. H. Parker, of Richmond, Va., who was elected president of the Brotherhood, on the grounds that a number of Carey ballots had been thrown out.

Mr. Carey lost the first round of the legal battle, Justice E. N. Smith of the New York state supreme court deciding against him. At the time Mr. Carey announced that he would carry the case to the appellate division and eventually to the court of appeals. Mr. Carey now announces that owing to the expense involved, he will give up the fight and seek other employment.

New England News

February 2, 1925.

Another New England paper company is operating in the hands of a receiver, but this one is of a decidedly minor nature when compared to the other. It is the Pepperell Card & Paper Company of Pepperell, Mass., who were petitioned in by the Amoskeag Paper Mill, of Manchester, N. H. In its petition, the New Hampshire company stated that the assets of $450,000 greatly exceeded the liabilities which were probably not over $200,000, but that capital had been withdrawn from the concern to the impairment of creditors' position. The company were represented in this litigation by Harlan H. Ballard, Jr., while the plaintiff's case was presented by Francis G. Hayes. The petition came up before Judge Andersen in the Federal Equity Court at Boston; the judge entered a decree appointing John H. Cashman, who had been connected with the Pepperell Card & Paper Co. in New York, as receiver. Mr. Cashman was authorized to borrow money on receiver's certificates, to carry out old orders and accept new business. The company is at present operating under his management.

Western Massachusetts Association of Purchasing Agents met at the Highland Hotel in Springfield, in January, for their annual meeting. Two hundred members and guests including representatives of the paper industry of the western Massachusetts section were present. R. G. Waite, of the Chemical Paper Manufacturing Company is president of the Association. The affair was social in nature and was attended by wives of members, Professional entertainers, and dancing following the banquet made a very pleasant evening.

What Do the Frasers Plan?

Boston pulpwood and lumber merchants familiar with developments in the section of Maine where the Fraser Companies, Ltd., of Edmunston, N. B., are operating declare that a sulphite writing mill looms as a probability at Madawaska, Me. The Fraser Companies operate a 42,000 ton annual capacity sulphite pulp mill across the river in Edmunston, N. B., while the 16,000 ton easy bleaching sulphite mill is at Chatham, N. B., not far distant. The Grand Falls of the St. John river offer potential power of a tremendously large character from which hydro-electric current for a much greater paper mill than is at present contemplated could be derived.

It has been stated that the Fraser Company will build a 200 ton mill. Such a mill manufacturing sulphite writings would rival anything in the United States. Its pulp would enter the United States duty free in case of a pulpwood enbargo, and its paper would escape the American duty. Men who believe they understand Mr. Archibald Fraser's reasoning see a plan to kill three birds with one stone going the proverb one better.

The Bangor & Aroostook continues enlarging its freight yard at that place, and the Fraser Companies, Ltd., have floated a $3,500,000 bond issue for new construction, and have acquired a site for a ferry approach on the Maine side of the St. John River.

A visit that may be with more than routine significance was made by President M. Parker and Secretary M. Burns of the International Brotherhood of Papermakers, to Holyoke. While in Holyoke, they conferred with International Organizer, W. A. Smith, regarding reconstruction work on the Eagle Lodge, the Holyoke union. The latter has never fully recovered from the effects of the strike two years ago.

New Super for American Mills

Two of the American Writing Paper Company mills, the Albion and Crocker divisions, are to have a new superintendent in the person of Edward J. McDonnell of Boston, who some few years ago was superintendent of the Tileston & Hollingsworth Co. mill, at Mattapan, Boston. The Crocker and Albion divisions constitute the large portions of the American Writing Paper Company organization. Mr McDonnell in addition to his Boston experience was associated with several others in

the ownership and management of the Marr-McDonnell Company at Mount Holly Springs, Pa., manufacturers of various specialties including greeting card, writings, manifold, waxing, rag book and other papers. This experience will be particularly valuable to him in his new connection.

Mr. McDonnell assumed his new duties at Holyoke on February 1. Holyoke is the city where he learned the business and his return is pleasing to the entire paper trade.

Other changes to be made by the American Writing Paper Company include the appointment of M. Hazen Chase as manager of the Mt. Tom, Nonotuck, Gill and Norman divisions of the company of Holyoke. He will also act as "contact" man for William Nixon and Leon Yoerg in charge of the coarse and fine divisions of the company respectively. The present mill chief clerks will be retained in the above mentioned companies.

Speaking of Mr. McDonnell, A. V. Howland, general manager of the Tileston & Hollingsworth Co., declared that the American had made a fortunate choice, that Mr. McDonnell was a highly capable executive and understood the technical and practical sides of paper manufacturing thoroughly.

Incoming pulp steamers have been seriously damaged by heavy weather at sea. The Olson, from Sundsvall, Sweden, with 4,300 tons of wood pulp, part of which was for Boston was terribly battered recently when she limped into Boston harbor several days overdue. Giant waves battered in the hatches, flooding the hold where the pulp was located. The Finnish steamer, St. Stephen, was so delayed by the weather that she was forced to burn part of her wood pulp cargo to provide fuel for the boilers. Both these vessels were consigned to C. H. Sprague & Son, of Boston.

The McElwain Club comprising foremen and executives of Crocker McElwain Company met in the Y. M. C. A. at Holyoke last month and elected the following officers for the ensuing year: president, Thomas Dillon; vice-president, William Wildman; secretary, Richard Mays; treasurer, Raymond Lacey; governing board of the chemical mill, Fred Glanville and Marcienne Whitcomb; governing board of the Crocker mill Gordon Blanchard and Gustave Petersen. Both Messrs. Crocker and McElwain gave inspiring talks on the business outlook for the ensuing year.

Extreme cold weather during January caused low water conditions to prevail in Maine rivers; consequently there were times when the mills were barely able to keep their machinery in operation owing to this condition. The Great Northern Paper Company, at Madison, was forced to curtail operations, because of diminished hydro-electric power, but the Hollingsworth & Whitney Co. plant at Waterville was able to maintain operations despite the low water by calling on their reserve steam power which is unusually large and designed for just such an emergency.

A report is current in the local trade that Rice, Barton & Fales Co., of Worcester, well known machinery manufacturers, have secured a contract in competition with many other manufacturers for the construction of a large paper machine for a western paper mill. The Fourdrinier will weigh in the vicinity of 500 tons according to an iron merchant.

It is gossip in the paper trade of this section that William F. Whiting, president of the Whiting Paper Compeny, of Holyoke—when you Think of Writing Think of Whiting—is slated for either a cabinet post or some other important position through appointment by President Coolidge. Mr Whiting is one of the original Coolidge boosters. He stuck to the then Massachusetts governor during the Republican Convention at Chicago, in 1920, even after Winthrop M. Crane, his fellow delegate and paper manufacturer had urged him to vote for Harding. He has been a consistent and loyal supporter of Coolidge. Recently he was entertained at the White House.

S. H. Willson, receiver of the American Writing Paper Company, will entertain his brother, Commissioner Willson of the U. S. Battleship Florida, at Holyoke during the coming month. Commander Willson has promised his brother a speech to the Holyoke Rotary Club.

The Rate Adjustment and Holyoke

The proposed class rate adjustment in Trunk Line territory would cause some severe adjustments in the Holyoke paper rates. Less carload shipments would be very severely penalized, but in many cases the carload paper rates would be decreased. To typical trunk line points, these rates would effect paper as follows: Less carloads moving at third class to Philadelphia would pay 59 1/2c against 40 1/2c at present; to Washington, 67 1/2c against 65; to Pittsburg, 75 1/2 against 59 1/4c; to Newark, N. J. 53c against 40c at present; to Buffalo, N. Y., 63 1/2c against 57c at present. Carload rates on paper which moves sixth class to the same points would be 25c against 27c at present to Pittsburg; 28 1/2c against 38c present to Washington; 31 1/2c against 30 1/2c present to Pittsburg; and 26 1/2c against 28 1/2c present to Buffalo.

The Kennebec Paper Company who have been in receivers hands for some two years are likely to be soon adujusted to a solvent basis. Judge John Z. Peters, in the U. S. District Court, at Portland, Me., has authorized sale of $168,000 of the company's bonds for $92,400 or more if they will bring better price. Walter S. Wyman, one of the trustees for this company and the Cushnoc Paper Company, both of Augusta, requested permission for the sale. The other trustees are Frank D. True and Edwin M. Frye. It is provided by the Judge that creditors shall have equal power with all other interested parties to buy these bonds. No interest has been paid for three years on these bonds which were given as collateral for loans. Nevertheless, they occupy an important mortgage position against the company's property. Mr. Wyman, acting for the power company which supplies both paper mills with power, is willing to buy the bonds but the Judge stipulates that it shall be an open sale.

Col. B. A. Frankiln, vice-president of the Strathmore Paper Company, and Seth L. Bush, research manager of Crocker McEluain Company, spoke before the Western Massachusetts Chapter of the National Association of Cast Accountants Tuesday evening, January 27, at the Highland Hotel, Springfield, Mass. Mr. Bush's Subject was The Technic of Paper Mill Cost Accounting, while Col. Franklin discussed the History and General work of the Cost Association of the Paper Industry.

George W. Brackett

George W. Brackett, 79 years of age, and for some time head loftman of the Chester Paper Company Division of the American Writing Paper Company, died at his home in Huntington, Mass. His first employment was with Greenleaf & Taylor, at the Chester Paper Company mill, where he remained after absorption of this company into the American Writing Paper Company merger.

Thomas A. Jackson

Thomas A. J. Jackson, for forty years foreman of the finishing department of the Parsons Division of the American Writing Paper Company, and prior to that, of the Massasoint Paper Mill, during the regime of E. C. Rogers, died at his home in Holyoke during January

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The New England Paper and Pulp Traffic Association will remove its quarters to the fourth floor at 101 Milk street, the new offices to be occupied on March 1. The lease has been signed by traffic manager, C. L. Whittemore. This location is more central than the present one at 88 Broad street and the new offices will be larger.

The Penobscot Chemical Fibre Company have appointed Joseph F. Gould of Bangor legislative agent at Augusta.

The well-known British firm of wall paper manufacturers, John Line & Sons, Ltd., are particularly active of late in putting out sales promotion matter among decorators and in advertising in the press the outstanding merits which paper possesses as a wall covering in preference to paint, distemper, or other materials.

The NEW BELOIT

No. 433

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The features of the new Beloit Fourdrinier and Shake are visualized, to some extent, by means of illustration No. 433 shown here. It shows the back view with shake mechanism and connections to machine. The amount of throw may be adjusted by hand-wheel "A" and the speed of throw by adjustable motor "B" *while machine and shake are running.*

This machine has all the "Beloit" features in their entirety; which embody all of the latest engineering principles and advanced developments of the science of paper-making:

1. Adjustable, as to pitch.
2. Removable, for ease in changing wires.
3. Shakeable, for interlacing of fibres at increased speeds.

Unusually heavy, sturdy construction of shaft, bearings and upright shake posts. Shake is applied at four places, but it may be detached from any one or all of the four. The light shaking rails are supported from the heavy, stationary ones by flexible leaves.

The new Beloit Fourdrinier and Shake is proving to the paper industry, conclusively, that fine papers can now be made on a wide, high-speed machine as satisfactorily as has heretofore been accomplished on a narrow, slow-running machine.

Beloit Iron Works — **Beloit, Wis., U. S. A.**

ESTABLISHED SINCE 1858

Pacific Coast News

February 2, 1925.

Plans Completed for Mill at Olympia

The plans have been completed for the organization and operation of the Olympia Pulp and Paper Co., which will occupy the buildings of old Olympia Brewery at Tumwater. The old buildings will be remodeled to house the first units of the paper mill. About 325 men will be employed in the sulphite and paper units, bringing an additional payroll of $500,000 to the city. The units will operate three eight-hour shifts of about 100 workmen each. The sulphite mill will be in operation within four months, while it is expected that the paper machines will be in operation within ten months, guaranteeing full production by January 1, 1926.

The existence of this mill is due to the efforts of the Olympia Chamber of Commerce, which has investigated every phase of the paper industry, and made trips to mills in Washington and Oregon, studying conditions. After a thorough analysis of needs of the industry and the earning capacity of paper mills, they reported favorably upon the establishment of the industry in Tumwater. Since that time officers and members of the Chamber of Commerce have coöperated as much as possible to make the proposed plant a reality and bring the additional payroll to this city.

Incorporation of the Olympia Pulp and Paper Co. was for $1,250,000, divided into preferred and common stock. H. S. Gile and William Trindle, prominent business men of Salem, Ore., and Virgil Baker, Olympia, are the incorporators. A board of five directors will manage the organization, two of them to be prominent Washingtonians, with the regular staff of officers.

Crepe, tissue and other light papers will be manufactured, which will give the plant the distinction of being the only one entirely devoted to this type of paper making on the coast. Competition will be almost entirely with eastern plants. Wood, which is used chiefly in the sulphite paper industry, is available at low cost in this section of the state. Power, fuel, clear water, lime and other raw materials are available at a cost much less than most paper mills are supplied. Eighty cords of pulp wood will be consumed daily, while waste from nearby mills is available at a reasonable rate for steam purposes. Olympia has fine shipping facilities both by water and by rail, which will insure low rates for domestic and foreign shipments.

Most of the brewery buildings only need a few minor changes so that they can be used, and a large addition to the main building will be added in order to house the two paper machines, and the finishing room will occupy the same building. It is estimated that forty to fifty men will be employed on modeling, new construction, installation and clearing work previous to opening the plant.

W. W. Ball is a paper man of long experience, having been connected with the paper industry for twenty-five years. For three years he was sales manager of the Oregon Pulp and Paper Co., at Salem, Ore., and from which he has just resigned. Previously he was vice-president and general manager of the Paper Warehouse Company of Tacoma, Wash.

New Washington Paper Mill Co. Formed

Articles incorporating the Leadbetter Lumber and Paper Mill Company at Vancouver, Wash., were filed with the auditor of Clarke county on January 4. Camas, fourteen miles east of Vancouver, is named as the home town of the corporation. The manufacture of lumber and paper are the chief objects of the company. Of the capital stock, $3,000,000 is listed as common and $1,000,000 as preferred.

The incorporators are B. T. McBain, superintendent of the Columbia River Paper Mills of Vancouver; Henry Crass, Vancouver attorney, and F. W. Leadbetter, president and chief stockholder in the Columbia River Paper Mills. The filing fee was $911.

Other than to say that the company's activities would be centered in and about Camas, Mr. McBain, one of the incorporators, said he was not at liberty to make a statement. F. W. Leadbetter, principal stockholder in the new corporation, who is also prominently identified in many mills operated by the Crown-Willamette Paper Company, is now in Santa Barbara, Cal., where he was called by the serious illness of his mother.

Predicts Good Business Ahead

Under date of January 17 the Journal of Commerce of Seattle said:

"The general paper situation in Seattle is considered by the trade to be favorable for a good year's business. The first quarter demand is strong, with prices on rag stock upwards, but newsprint, bag, and wrapping paper evidence no change.

"Mills are now supplied with between thirty and sixty days' orders, considered a substantial volume. Prices for last quarter ranged 5 per cent higher than previously. They are continuing to hold onto certain commodities. Jute and hemp prices are especially strong, with cotton showing a somewhat stronger tendency. April, May and June are considered by the Seattle trade to be banner spring months. It is anticipated that these months this year will show an unusually good volume of business."

The Oregon City Pulp and Paper Co. is being sued by G. B. Christie for the sum of $1,050, which he says is due to him for furnishing pulp wood to the mill. He contracted to furnish this pulp wood from the territory lying east of the Willamette and was to be compensated $7 a cord for unpeeled and $7.50 for peeled, also a commission of 75 cents a cord. Mr. Christie claims that he obtained approximately 600 cords for the company and received in payment $3,450, but the pulp company refuses to pay a balance of $1,050 due him.

The Columbia River Paper Mills proposes to increase the common stock of the corporation $750,000, according to J. J. Donovan, secretary of the corporation. The increase, which has been approved by the board of trustees, would make the company's common stock, which is now $1,250,000, a total of $2,000,000, and would give the company a total capitalization of $2,750,000. The remainder of the Columbia River Paper Mills' stock consists of preferred stock to the amount of $750,000.

Government reports show that there are 5,460,000,000 feet of pulp timber in the Selway, Clearwater and Nez Perce National Forests of Central Idaho alone, and practically every foot of this will come to market down the Clearwater River. The Government has a minimum stumpage price of $1.50 per thousand for this pulp timber and none will be sold for less. The price is determined by accessibility and the cost of logging operations.

New Bag Factory at Camas

According to reports current in Camas, Wash., the city is to have a new $1,000,000 bag factory, construction of which will be begun about March 1st, according to C. W. Vail, manager of the Camas Telephone Company. The factory will be erected by the Crown-Willamette Paper Company and will stand on a portion of the property now occupied by the company's paper mill.

Ray Young, superintendent of the Camas plant, would neither confirm nor deny reports that his company is prepared to build a new bag factory, but said the concern would probably have an announcement to make next month. The new factory building, it is understood, will be of concrete and fireproof throughout. It will be located north of the present bag factory of the Crown-Willamette plant in Camas.

The Inland Empire Paper Co. at Spokane will make improvements to its plant in Millwood, Wash. A machine room 856 by 140 feet and two stories high, built of steel and concrete, will be added. The Austin Company of Seattle and Cleveland has the contract for construction. The plant turns out from 90 to 100 tons of finished product each day, specializing in newsprint.

E. E. Embree, formerly of the American Paper Co., is opening a new wholesale paper house in Seattle, of which he will be president and general manager.

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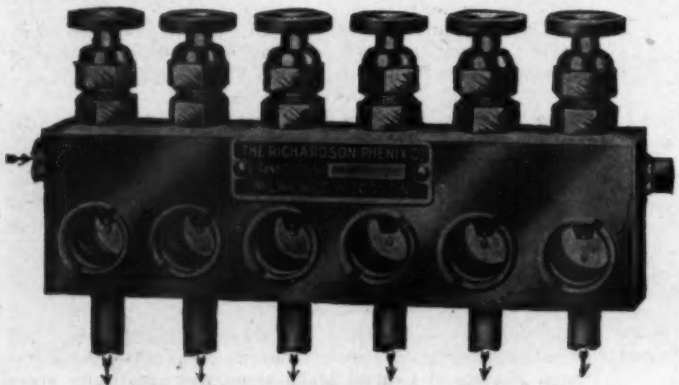
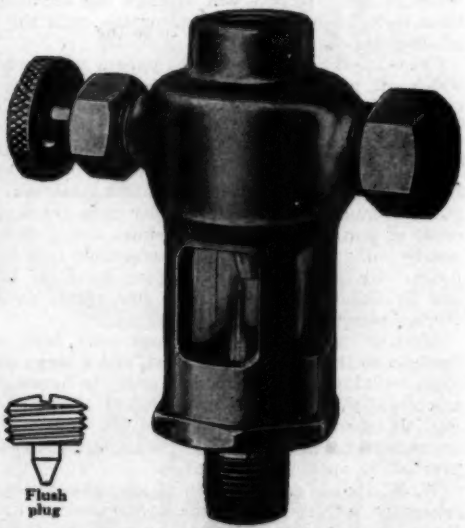
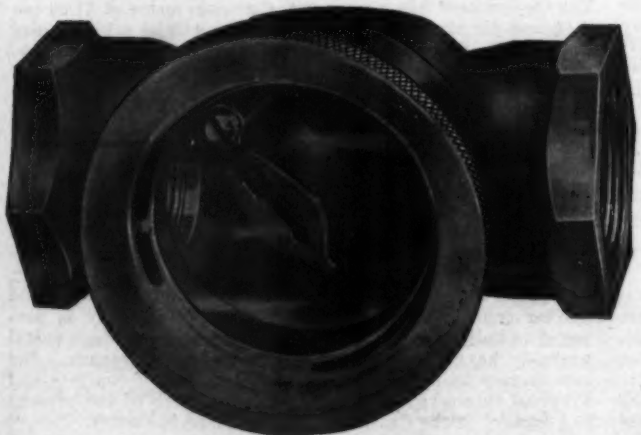


Richardson-Phenix No. 20 multiple sight-feed oiler



Flush plug

Richardson-Phenix No. 12 sight-feed oiler—4-window



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Serious Loss to British Paper Industry

The pulp and paper industry of Great Britain has suffered a very serious loss in the death, on Christmas Eve, at Ashtead, in Surrey, of Mr. Leonard Peel Andrews, head of the firm of Andrews & Co., Ltd., pulp merchants of Blackfriars House, New Bridge street, London, and well known as the president of the British Wood Pulp Association, a position which he had held since June, 1920.

Mr. Andrews had been associated with the pulp trade since 1883, when he handled the esparto trade for an Edinburgh firm, afterwards acting as agent for the sale of wood pulp in Edinburgh for a Norwegian firm when this substance first made its appearance on the market as a raw material for paper making. He founded the firm which bears his name, in July, 1899. The firm represents a number of Scandinavian wood pulp mills and also interest themselves largely in esparto.

British Empire Exhibition in 1925

It has now been definitely decided by the authorities that the British Empire Exhibition will be reopened in 1925—probably May 1st. "The Observer," commenting on this fact, says:

"Certain great industries, such as that of the textile machinery makers, made a great patriotic effort to show what the United Kingdom could do and they did it at immense expense, regardless of what it would bring them in actual business. Naturally, such an effort cannot be repeated at an interval of six months.

"In the same way, the Paper Makers Association installed a great machine to demonstrate to the world that the United Kingdom leads in this field. But, again, the expense was too heavy to be repeated. The disappearance of these joint exhibits does not mean, however, that cotton and paper will not be represented, but it will be on a different scale, and the emphasis will be rather on the finished product than on methods of manufacture.

"On the other hand, some sections represented in 1924 already show signs of occupying a far larger space, and a few industries which for other reasons were not represented at all will make an important show in 1925."

No actual statements have yet been issued by the British paper manufacturers as to their intentions with regard to Wembley during 1925.

The Mid-West Safety Conference

The Mid-West Safety Conference conducted under the auspices of the American Society of Safety Engineers—Engineering Section, National Safety Council—was held at the Hotel LaSalle, Chicago, January 19. It was so successful that the National Safety Council has announced their intention to make the conference an annual affair. The recent conference was the third held in Chicago, and attracted more than 400 engineers and plant executives from Chicago and other industrial centers within a radius of several hundred miles,

Speaking before the afternoon session on "How the Illinois Department of Labor and the Industries of the State Can Co-operate in Accident Prevention," R. D. Cahn, chief statistician, Illinois Department of Labor, Chicago, stated that the department has asked the state legislature to create a technical division to deal with the accident problem which will be known as the division of safety research and statistics. This division will undertake to develop facts for use in safety work on a scale never attempted by a state labor department. The first essential in accident prevention work, Mr. Cahn pointed out, is to obtain more accurate and comprehensive statistics on accidents. A second method by which the state department of labor can prevent accidents is through the more effective use of the inspection service. In addition to the prompt reporting of accidents on the standard forms now used by a number of states, the department plans to obtain from employees the number of man-hours worked, and later will ask co-operation in putting into effect the positive recommendation obtained through safety research. The Executive Committee of the National Safety Council meeting in Chicago, January 19, completed preliminary arrangements for the Fourteenth Annual Safety Congress of the National Safety Council which will be held in Cleveland, Ohio, September 28 to October 2.

Vance Edwardes Rejoins Forest Products Laboratory

Mr. Vance P. Edwardes, in charge of sulphite investigations in the pulp and paper section of the Forest Products Laboratory, 1917-1921, has rejoined the laboratory after three and one-half years in the employ of the Interlake division of the Consolidated Water Power and Paper Company, at Appleton, Wis. When Mr. Edwardes joined the Consolidated Water Power and Paper Company forces he was placed in charge of the organization of a laboratory to develop methods of control and standardization of mill operations. For two and one-half years he was in charge of the sulphite department, further developing control methods of both quality and production. In 1924 Mr. Edwardes made a trip to Norway and Sweden as a representative of his company, to study methods used there in the sulphite process, particularly in the cooking and handling of pulp and in steam conservation.

Mr. Edwardes is well known to the members of the American Pulp and Paper Mill Superintendents' Association as first vice-president of the Northwestern division of that organization. His new position with the Forest Products Laboratory involves liaison work with the pulp and paper industry. He is at present occupied with the promotion of better white-water utilization both from the standpoint of conservation of valuable materials and stream pollution.

Following two weeks' illness in the Western Hospital, at Toronto, Ont., the death took place a short time ago of a man widely known in the printing and paper trades of Canada in the person of James W. Corcoran, head of the Canada Printing Ink Company, Limited, in that city. The late Mr. Corcoran had been a resident of Toronto for nearly forty years, coming to that city from Cleveland to associate himself with the Canada Printing Ink Co., of which he later became President. His business brought him in contact with most of the printing fraternity in Canada, and he also had a host of friends in the paper trade. He was an enthusiastic bowler and curler, a prominent mason, and was connected with a number of social and business clubs.

Howard Smith Paper Mills have declared the usual quarterly dividend of 2 per cent on the preferred shares of the company. The company are expected to benefit from the new price lists for paper which show some advances in a number of lines, and the directors are hoping to maintain the dividend until the upward movement comes again in business to remove any question of its payments.

R. J. Flynn, manager of Buntin Reid Co., wholesale paper dealers, Toronto, Ont., has been re-elected mayor of the progressive town of Weston, Ont., where he resides. He was returned by acclamation, and has held the office for four years.

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Canadian Section

Montreal, February 2, 1925.

Bank President Urges Tax Instead of Embargo

Sir Herbert Holt, president of the Royal Bank of Canada, and one of the foremost industrialists of the Dominion, recently came out in opposition to an embargo on pulpwood, but in favor of an export tax. Speaking at the annual meeting of the Royal Bank, he said in part:

"During the twelve months ending October 31, 1924, we exported to the United States 1,318,735 cords of pulpwood, valued at over thirteen and one-half million dollars. Our forest resources are large, but they are by no means inexhaustible, and we must not forget that they are steadily being reduced by a very large export of lumber and pulp and paper. Today, when this country urgently requires every dollar of earning power it can possibly secure, I think we are foolish to export large amounts of pulpwood in its raw state. Our policy should be changed.

"While an embargo on exports is perhaps too drastic a measure to advocate, I believe an export tax on pulpwood would be beneficial, as an adequate tax would result in the further development of the paper making industry in Canada and the provision of more work for our people. To avoid too sudden a disturbance in business, the full amount of the tax need not be applied in the first year of its operation, thus giving an opportunity for all concerned to adjust themselves to the new situation and to create a market in Canada for the pulpwood which has heretofore been sold abroad. In addition to making better use of our forest resources, we should endeavor to check depletion by the best methods of fire protection and reforestation which can be discovered."

Premier Taschereau on Pulpwood Embargo.—In the same speech in which he declared himself absolutely opposed to export of power from the Province of Quebec to the United States, Premier Taschereau called for opinions with regard to the export of pulpwood in its raw state and hoped that general co-operation would result in a solution. While recognizing the desirability of as much money as possible coming from the exploitation of natural resources being kept in the country, at the same time he wishes to have the livelihood of settlers safeguarded, and to preserve the province's record for integrity in its dealings in the case of United States companies.

The Premier tentatively brought up the question of the fixing of a minimum price for pulpwood so as to protect the settlers, such price to be based upon the distance to the mill and market conditions. While pointing to the failure of most efforts at the fixing of prices, he entertained the possibility of a satisfactory arrangement.

He indicated that the question would receive thorough discussion in the House. An embargo upon the export of pulpwood would undoubtedly be an important bull card for Canadian pulp and paper companies, and it is understood that the question is to come up at Ottawa in the forthcoming session.

Ontario Has Same Views.—"I am opposed to the export of hydro-power," said Honorable Howard Ferguson, Premier of the Ontario Government, when interviewed regarding the declaration of Premier Taschereau to the effect that sooner or later Quebec would decree an embargo upon the export of hydro-electric power to the United States.

"I am opposed to the exportation of electricity for two very good reasons. One is because the people of Ontario need all Ontario's hydro-power, and the other is because it is very difficult and embarrassing to stop the exportation after it has once been commenced."

The electors of New Toronto confirmed a proposal to fix the assessment of the Reg. N. Boxer Co., manufacturers of wall papers, for a period of ten years at the rate of $75,000 plus a business assessment of $45,000. The by-law was carried by a large majority.

Quebec Resists Sale of Power to U. S.

Premier Taschereau, of Quebec, just about disposed of the question of the export of hydro-electric power from this Province in an address before the Quebec Legislature recently. His stand is of interest, not only by reason of his definite disposal of this much mooted question, but in that it gives an indication of how he will stand in other matters.

The Premier declared that Quebec is against the export of power and gave very logical reasons as to why. He admits of a certain indefiniteness of jurisdiction in the matter, but lays down certain points in which the province has undisputed jurisdiction, and declares that Quebec will fight to the limit against any federal authority permitting the export of power from the province. For instance, he points out that if means are found to export power without provincial assent, there is nothing to prevent the province from exacting a royalty high enough to make such export unprofitable, to say nothing of expropriation and right-of-way matters over which the province has jurisdiction. He warns any who enter into contracts in the expectation of such a federal measure that they do so at their own risk.

Donnacona to Expand

It is rumored that Donnacona Pulp and Paper Co. plan to erect a new mill or power plant at Pont Rouge, Portneuf County, Que., where they already possess some water development and a small mill. At present the pulp and paper mills of the company are located at Donnacona, about twenty miles west of Pont Rouge, where they produce some two hundred tons of newsprint a day.

Through the construction of a power plant at Pont Rouge on the Jacques Cartier River, the company would be considerably extending their operations, and it is expected that the work will start early in the spring.

Fraser Acquires Ferry Road

More formalities have recently been completed in connection with the project of the Fraser Companies, Limited, to erect a big paper mill at Madawaska, Maine, across the St. John River from Edmundston, N. B., and it is believed that everything is in readiness for actual work to be commenced in the early spring.

One of the latest events in connection with the preparation has been for the town of Madawaska to sell the old ferry approach road on the Maine side of the river to the Fraser Companies, for the nominal price of $1. The agreement provides that unless the Frasers build a paper mill at Madawaska within five years the property shall revert to the town again.

It is stated that no United States interests are linked up with the Frasers in the project, although the Bangor and Aroostook Railway Company have been active in the matter as a traffic-producing proposition. The lands which have been purchased on the Maine side have all been bought by the Bangor Investment Co., which is the holding corporation which handles the Bangor and Aroostook Railway's real estate matter.

Powell River Expansion

The Powell River Co., Ltd., of Vancouver, B. C., has awarded a contract for betterment and expansion of its mill at Powell River, B. C., to Armstrong and Morrison. The immediate program calls for the construction of a new grinding mill and other undertakings at the mouth of the Powell River; work on which will be started at once. The new

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building, which will house additional wood grinding equipment, will be situated near No. 1 pier and will be of reinforced concrete.

The rock fill will approximate 62,000 cubic yards and will be put in just south of the river mouth. Concrete foundations and anchorage for additional penstock leading from the power dam to the site of the new building will also be constructed. The complete development program as outlined by the company will, it is estimated by company officials, run to about $4,000,000.

Companies Benefit by Kenogami Dams

O. O. Lefebvre, chief engineer of the Quebec Streams Commission, recently gave a most interesting lecture before the Engineering Institute of Canada, the subject being the dams erected by the Quebec Government in the Kenogami district.

With a series of slides, Mr. Lefebvre described the work being carried out by the Quebec Streams Commission in the Kenogami Lake district, including the damming of various lakes so as to stabilize the water supply. By this enterprise, now nearing completion, he showed that where in the past the pulp and paper mills of the Price and Chicoutini companies had been compelled to shut down for several months each year on account of lack of water, the new system of dams had so insured a stabilization of water supply for hydro-electric work that in future they would be able to operate twelve months in the year, thereby increasing the potential wealth of the province and benefiting both the companies exploiting the forest resources of the region as well as the men employed by them.

The work, which was begun in 1923, is due to be completed this year. The total cost will be about $3,300,000, and arrangements have been made so that interest and sinking fund charges will be met by the beneficiary companies, who will pay the current rate of interest on the investment, plus three per cent for overhead and sinking fund.

The joint committee on approved chemists of the American Paper and Pulp Association recently approved for listing T. L. Crossley, 28 Lonsdale Road, Toronto, Ont., and W. Matteson, Box 107, Port Alfred, Que.

New Pulp Mill for Canada Paper

The Canada Paper Co. is to erect a new pulp mill, the designs of which are in the hands of Geo. F. Hardy, New York. The mill is being laid out to run either by the soda or by the Keebra process.

Steam will be supplied by Babcock and Wilcox boilers built by Goldie & McCullough, of Galt, Ont. They are equipped with type E stokers and Ljungstrom Air Preheaters instead of economizers, and will operate at 200 pounds pressure. The digesters are being built by the American Welding Company to operate at a working pressure of 150 pounds.

The pulp will be washed on filters and the hot water will be supplied by the condensation of the blow-off steam.

The mill will be a very compact unit, with a capacity of 50 tons per day, and is being designed with every provision for economic manufacturing.

Harry P. Reid, former superintendent of Kilgour Brothers' plant, manufacturers of bags and paper boxes in Toronto, Ont., is now on the selling staff. His health, which was poor for some time past, is much better since he assumed an outside position.

Powers of Quebec Mills to be Enlarged

Advices have been received by the Private Bills Committee of the Quebec Legislature that the Quebec Paper Mills, Limited, which were recently incorporated by provincial letters patent and which will build a large pulp and paper mill within a short distance of Quebec City and exploit the Manicouagan pulpwood limits on the north shore of the St. Lawrence River, will apply to the Quebec Legislature during the present session for a special act.

The objects of the act will be, among others, to confirm the title of the company to all the property and rights formerly acquired and also grant certain additional powers. Permission will be sought to increase the capital and to issue stock, and also to operate laboratories and to deal in chemical and electro-chemical products and by-products.

Changes in Howard Smith Staff

George Davidson, who for some years has been in charge of sales at the Toronto office of Howard Smith Paper Mills, Limited, has been transferred to an important executive position in Montreal and will remove to that city.

Ernest Rolph has become connected with the organization and has joined the service staff at Toronto.

Word received from Howard Smith, president of the company, who is now in Switzerland, is to the effect that his health is greatly improved and that he is beginning to feel his old self once more.

The Canoe Lake Lumber Co., Ltd., with head office at Canoe Lake, in the district of Temiskaming, has been granted a charter, with an authorized capital of $500,000. A. E. Clark, of Toronto, is president and general manager of the organization, and W. Norman Fox, Toronto, is secretary-treasurer. The company are empowered to carry on a general lumber and logging business as well as to make and deal in pulp, paper, pulpwood and other allied lines.

Great Lakes Co. Increases Capital Stock

The capital stock of the Great Lakes Paper Co., Fort William, Ontario, has been increased by supplementary letters patent from $8,000,000 to $12,000,000. It is understood that the company will go ahead in the spring with the erection of a news print mill of one hundred tons capacity, as a beginning, and that the output will be increased later. The company, of which J. H. Black, of Toronto, is president, has been operating a groundwood mill of about one hundred and sixty tons daily capacity for some months, and is finding a steady market for its output.

Two Boats for Liverpool-New York Pulp Traffic

The Tidewater Pulp and Paper Co. of New York has engaged two steamers to transport pulp from Liverpool, N. S., to New York. The steamers are both of Norwegian registry, the *Stella* and the *Bornholm*. The *Stella* recently made her first trip into the port of Liverpool.

The pulp is from the two plants of the MacLeod Pulp and Paper Co. on the Mersey River, at Cowie Falls and Rapids Falls. Recently arrangements were made whereby the Tidewater Pulp and Paper Company will use a large quantity of the MacLeod pulp during the next twelve months.

New Digby Dock Facilitates Pulp Shipment

The shipment of pulp from Digby has been greatly facilitated by the erection of a new dock, supplemented by some needed dredging. In the past the freight steamers carrying from Digby to Europe and to the United States were handicapped by low water at low tide, the rise and fall of the tide in the Bay of Fundy extending from twenty-four to thirty-five feet.

A new spur line has also been built, connecting with the Dominion Atlantic Railway and extending to the docks, and this has materially aided the pulp shipping also. During the winter about two steamers weekly are expected in Digby to load pulp.

Price Brothers Win Suit

An important judgment was rendered recently in the Superior Court at Montmagny by Judge Letellier, in the case of Price Bros. & Co., Ltd., vs. La Corporation d'Energie de Montmagny, the said judgment being in favor of the plaintiff with costs.

The decision settles a long drawn out legal battle, the claim of the plaintiff being that the defendant company is barred from giving a service of electric light in the town of Montmagny and parish of St. Thomas de Montmagny, derived from their St. Raphael power plant, for the reason that this power

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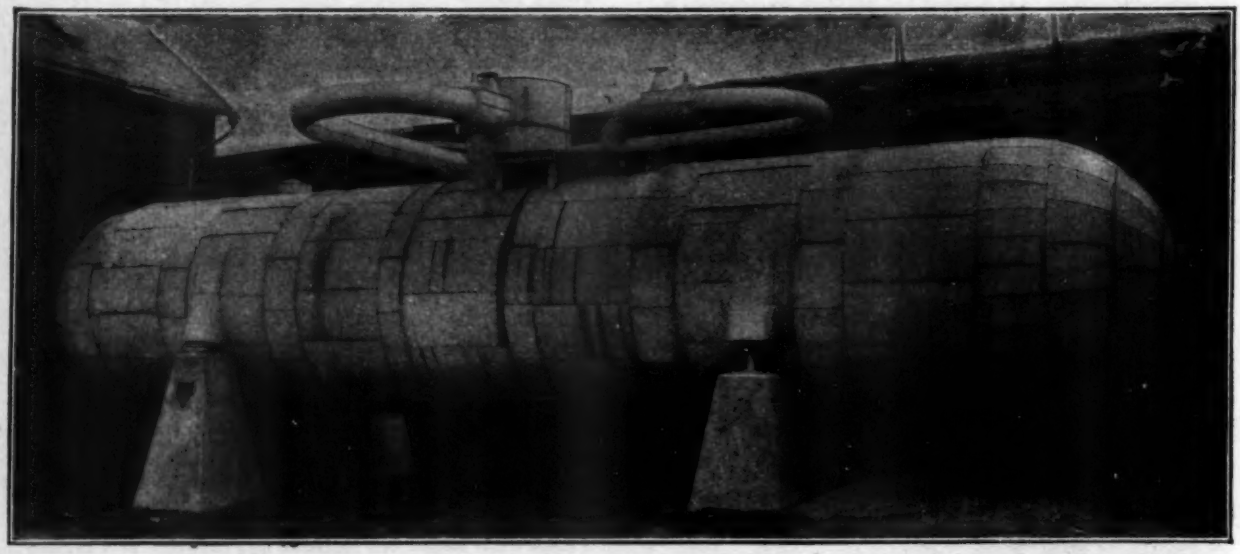

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Due to constant combustion conditions, a fuel saving of from 10% to 30% can be obtained; moreover the upkeep of the boilers will be reduced to the minimum.

But there is another and even greater advantage to be gained from the installation of a Ruths accumulator—production in the mill will be increased. The accumulator speeds up industry!

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house was built on lots sold by plaintiff and that the deed of sale under which it was acquired contained a restriction to that effect.

Hearing Adjourned on Claim of Pulp Company

The claim of the Inglewood Pulp and Paper Co., Ltd., against the New Brunswick Electric Power Commission now stands at $840,000, made up as follows: $600,000 for land taken; ten per cent for forcible taking, $60,000; and damage by severance $180,000; total $840,000. G. G. Murdoch, for the Commission, estimates the damages and value of the land at $59,003.56.

At the close of the court session on January 10th, at St. John, N. B., Mr. Justice Leblanc adjourned the hearing to April 14th next in spite of the opposition of the counsel for the Commission.

J. G. Ross, manager of the Southern St. Lawrence Fire Protection Association, recently delivered an interesting address before the Kiwanis Club at the Chateau Frontenac, Quebec City. He said that the forests of Quebec must be kept green if the province does not desire to see its population dwindle. The forests are not only a big problem to the lumberman and the pulp and paper manufacturer to interest themselves in, but also for the general public, as the people through the Government are the ultimate losers if the timber is devastated by fire.

An important conference of the staff of the Interlake Tissue Mills, Limited, was held in Toronto recently, and all were entertained to a theater party and dinner. William Innis and F. L. Falconer, of Montreal, who represent the company in that city, were in attendance.

Interest in Safety Work Sustained

A. P. Costigane, Toronto, secretary and engineer of the Ontario Pulp and Paper Makers' Safety Association, paid a visit to the Mille Roches plant of the Provincial Paper Mills, a short time ago, and also to the Cornwall mill of the Howard Smith Paper Mills. At the latter mill a meeting of the heads of the various departments was called, and a profitable conference took place on ways and means to reduce the number of accidents. It is hoped by the joint co-operation of managers, heads of departments, and employees to lessen substantially the frequency and severity of mishaps in the plant during the present year. At the Mille Roches division of the Provincial Paper Mills the alterations and extensions are completed, and several safety devices have been added to eliminate physical hazards in the operation of the mills.

Sault Mill Wins Safety Shield

The Sault Ste. Marie mill of the Spanish River Pulp and Paper Mills, Ltd., has won the championship for the best record in the matter of Safety, and will hold the shield in Class "A" mills for the present year. The trophy is offered for annual competition by the Ontario Pulp and Paper Makers' Safety Association, of which A. P. Costigane, Toronto, is engineer and secretary.

The winning of this award means that of all the Ontario pulp and paper mills employing two hundred men or over, the Sault mill lost the smallest amount of time due to accidents per full time worker. There has been no fatal accident at this mill since 1921.

Laurentide Output Well Contracted For

The many plans for newsprint mills and for extensions to existing mills are causing some apprehension in newsprint circles in this country, and doubts are expressed as to whether the market will be able to absorb all the new production that is coming along. In this connection an address given to the Laurentide Council by George Chahoon, Jr., president of Laurentide Co., Ltd., is worth noting.

He foresees that all the additional production that is being planned will result in overproduction, for some time at least: there will not be sufficient orders to keep all the mills running at full capacity, and the Laurentide Company will have to stand its fair share of what curtailment is necessary. He does not consider, however, that the situation is as serious as many people picture it. At the present time Laurentide is under contract for about 80 per cent of its full capacity, and if conditions in other lines of business remain good the management hope to be able to get some additional contracts.

The Bear River Pulp Co., Ltd., at Bear River, N. S., have started their mill and are now manufacturing Kraft pulp for shipment to the United States by water. The capacity of the mill will be forty-five tons dry weight per twenty-four hours. Improvements effected included the building of a continuous stave pipe five and a half miles long, which brings water for washing purposes from the east branch of the Bear River to the mill. This is made of Douglas fir and is twenty-four inches in diameter.

The News Pulp and Paper Co., of St. Raymond, Que., is now producing about 15 tons of groundwood and 30 tons of newsprint a day. Another newsprint machine may be installed this year. The company is controlled by Lord Atholstan of Montreal, formerly Sir Hugh Graham. None of this company's pulp and paper is shipped across the international border.

Extensions Planned in Nova Scotia

The Premier Paper and Power Co. are planning the installation of a newsprint machine at their mill at Hartsville, N. S., on the St. Croix River. They have already made a number of improvements in the Hartsville mill during the last two years, and the intention is to effect further improvements during 1925. The existing production is of approximately fifteen tons of paper and twelve tons of groundwood daily; and the capacity will probably be substantially increased during the present year.

Another concern that may install one newsprint machine during 1925 is the Nova Scotia Pulp and Paper Company, with office at Charleston and mill at Mill Village, N. S., on the Medway River. It is now producing thirty tons of groundwood daily. Indications are that the pulp manufacturing capacity will be increased and that a newsprint machine will be installed to take care of the increase in pulp production. This company has what is believed to be the lowest monetary capitalization of any pulp producing firm in America. The capitalization is only $200,000 in common stock.

There is no immediate intention on the part of the executives of the MacLeod Pulp and Paper Co. to install newsprint machines in the mills at Cowie Falls and Rapid Falls on the Mersey River. This company may increase the pulp manufacturing capacity in 1925. The control of the company is still vested in F. J. D. Barnjum, who announced some time ago his intention to sell the controlling interest and remove to the United States.

F. H. McNaught, secretary-treasurer of the Bear River Pulp and Paper Co., narrowly escaped death recently, near Bear River. Mr. McNaught was driving his car over what is known as Victoria Bridge, when his car skidded. The machine crashed against the side of the bridge, wrecking the superstructure, and was about to drop to the ground thirty feet below when one of the rear wheels became caught in part of the bridge, suspending the car partly in the air and partly on the bridge.

While in charge of a train of pulpwood on the Milltown branch of the Canadian Pacific Railway, conductor Allan Talbot was severely injured. Two of the cars became derailed and turned over on the side of the roadbed. Talbot was thrown against one of the cars and struck his head against the iron work. He had to be transported to the hospital at St. Stephen, N. B. Two brakemen were also thrown from the train but escaped injury.

Lieutenant-Colonel Thomas Gibson, vice-president, and J. G. Gibson, secretary, of the Spanish River Pulp and Paper Mills, head office Toronto, were among those who attended

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the president's annual banquet at Sault Ste. Marie, Ont., on January 10. In connection with the gathering there were meetings of the industrial relations committee and other organizations designed to promote the good will of management and men. The banquet itself was a huge success and brought together the leading executives of the three mills and representatives of the men employed in every department, together with a number of prominent civic representatives. The feature of the banquet was an address by Professor B. K. Sandwell, of McGill University.

Admit Public to Toronto Course

For some years past a course of lectures on the technology of pulp and paper has been given to fourth year students of the Faculties of Applied Science and Forestry of the University of Toronto. These lectures have been given with the co-operation of Professor J. Watson Bain, by Mr. T. Linsey Crossley, chairman of the Committee on Education of the Canadian Pulp and Paper Association. It has been decided this year to have these lectures open to any who may be interested.

The first lecture was given Tuesday, January 20, at the Mining Building of the University, at nine o'clock in the morning, and are being continued weekly at the same time and place. No fee is charged. The lectures are illustrated, and aim to cover in a general way the field of pulp and paper making with a view to its opportunities for graduates in applied science.

Prominent Paper Maker Passes Away

Lauren H. Gardner, a prominent paper manufacturer, died at his home in St. Catharines on January 12th after a prolonged illness, at the age of 57.

He was a native of Rochester, N. Y., and started as a young man in the manufacture of paper with his father, at the Mumford Paper Co.

In 1912 he came to St. Catharines and organized the Garden City Paper Mills, and later the Canadian Vegetable Parchment Company, being president of the former and vice-president of the latter concern. He was also a director of the Victoria Paper and Twine Company of Montreal and Toronto.

Mr. Gardner was an outstanding figure in the trade, particularly in the tissue and light weight paper division. He introduced the manufacture of vegetable parchment into Canada.

Wealth Produced from Quebec Forest Resources

Honorable Gerard Power, member of the Legislative Council for Stadacona, who seconded the address on the speech from the throne at Quebec last month, referred to the forest situation as follows:

"From the exploitation of its forests, the government of the Province of Quebec derived an income of $3,778,000 during the last fiscal year. It has been estimated that in the same period the sum of $27,000,000 was expended in direct wages in the province in connection with this industry. The value of the products of our forests during the past year amounted to approximately $111,000,000. In importance and in extent, this industry ranks second only to agriculture, and let me say in passing that in many large sections of the province these two industries, in order to survive, must go hand in hand."

Concerning the exportation of timber, Mr. Power said:

"It must be evident to all of us, whatever may be our prejudices, or wherever our interest may lie, that we cannot continue to permit enormous quantities of pulpwood, approximately 750,000 cords per annum, to be exported for manufacture in foreign mills. It behooves us, therefore, to face the problem courageously and to convince our people by education and otherwise that sooner or later it will become the duty of the Government to declare and to enforce by legal enactment the prohibition of the exportation to any foreign country of forest products which have not been put through at least one process of manufacture within the province."

Fire broke out a few days ago in the premises of the Guelph Paper Box Co. and in a short time practically the whole plant was ablaze. The fire is reported to have started in the basement, and the stock being very combustible, it fairly raced

THE STEPS BETWEEN

designing the machine and machining the castings are mighty important ones. Making the patterns and the castings from them are two vital operations of machine building.

Just so, the steps between your reading this advertisement and the installation of a Camachine roll-winder in your plant are important ones. We take most of them — you take the first one! You need good roll-winders—we build them. If you tell us, we'll *know* you need them, and then we can make recommendations without obligation on your part.

Tear out and mail us the coupon

Let us have information on CAMACHINES for producing rolls of.....

.....

.....

Name.....

Address.....

To Cameron Machine Co., 61 Poplar St., Brooklyn, N.Y.

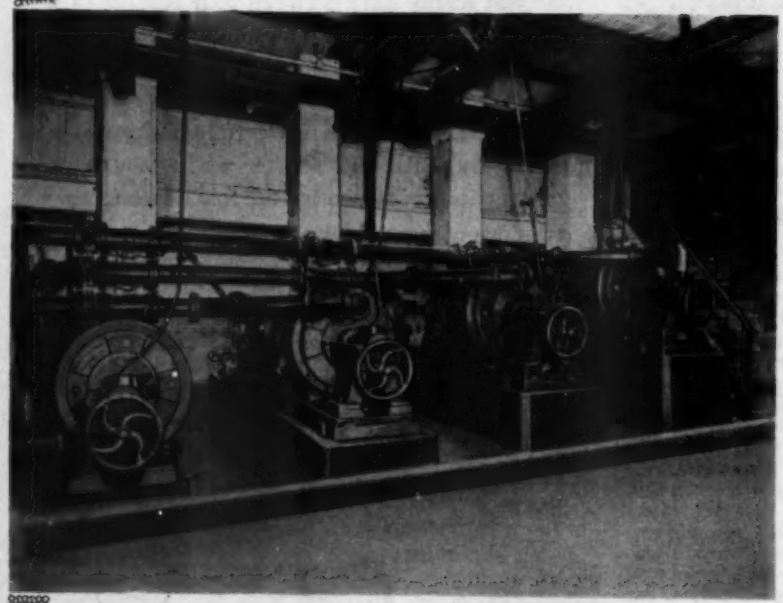
FOR LONG, HARD SERVICE, USE

Noble & Wood Beaters and Jordans

Because:

They are built in all sizes with wooden or iron tubs and are noted for their good circulation and extremely sturdy construction.

They are built to stand long, hard service, year in and year out with a minimum amount of repair.



Because:

There are six sizes of machines to choose from with many special Jordans for particular service.

Jordans for light or heavy service, Precision Jordans, roofing rag stock Jordans, Jordans with the most approved type of anti-friction bearings, Jordans that will perfectly refine any stock that can be refined.

NOBLE & WOOD MACHINE CO., Hoosick Falls, N. Y., U. S. A.

Canadian Builders: Port Arthur Shipbuilding Co., Ltd., Port Arthur, Ontario.

Manufacturers of Beating Engines, Washing Engines, Broke Beaters, Paper Pulping Engines, Bindersboard Machines, Dusting Machinery, Experimental Laboratory Machinery, Miniature Beaters, Miniature Jordans, Belt and Motor Driven Jordans in Four Sizes, Bull Dog Roofing Stock Jordans, Precision Jordans with anti-friction Bearings and .001-inch Plug Adjustment, Stuff Pumps and Chests. All Makes of Jordan and Beater Filling Steel and Bronze.

through the whole building, and the employees had to make hurried exits. Trouble was experienced in extinguishing the blaze on account of the very cold weather prevailing. The damage is estimated at about $50,000.

Meeting of the Canadian Forestry Association

The Canadian Forestry Association recently met in Ottawa to celebrate the twenty-fifth anniversary of the foundation of the society. The meeting was well attended and was addressed by His Excellency Lord Byng of Vimy, Hon. Charles Stewart, Minister of the Interior; Rt. Hon. Sir Charles Fitzpatrick; R. S. Kellogg, secretary of the Newsprint Service Bureau, and others.

Expressing the opinion that more had been done in the last ten years to conserve Canadian forests than had ever been done before, Mr. Stewart assured the Association that the Federal Government intends to coördinate in the future all the technical and practical facilities in the Dominion for the preservation and increase of forestry assets. As head of the department in charge of Canadian forests, he added: "All the money I can get hands on I shall put to this use, because I believe it will be well spent."

The year 1924 proved to be a period most favorable to the development of public interest in forestry. Membership in the association increased by 1,300, and a favorable financial statement was submitted.

J. A. Gillies, of Ottawa, was elected to succeed Lieut.-Col. Percy B. Wilson, the retiring president, and A. H. Campbell, of Montreal, was elected vice-president.

International Dam at Grand Falls, N. B.

An application from the New Brunswick Hydro-Electric Commission for the approval of plans for the construction of a dam across the St. John River, from the Province of New Brunswick to the State of Maine, above Grand Falls, N. B., has just been received by the Department of Public Works at Ottawa. The matter will be reported upon by engineers and will then be referred to the Governor-in-Council for consideration.

As the proposed construction is of an international nature, approval by the International Joint Commission, which body deals with waterway questions of this character where the governments of Canada and of the United States are concerned, will also be necessary.

Mattagami Fared Well

According to S. R. Armstrong, general manager of Mattagami Pulp and Paper Co., Ltd., Smooth Rock Falls, Ont., the company have had a very good year, with a most satisfactory production. During the year they manufactured and sold 52,000 tons of sulphite pulp. They are now completely out of stock and are sold up for January, February and part of March.

The average output for the year just closed was 170 tons per operating day, and the present average is up to 185 tons. The biggest run the mill had during 1924 was 205 tons in one day. The company have contracted for 120,000 cords of pulpwood for the current year and are now handling about 45 to 50 carloads a day. Of this wood, 100,000 cords will be secured from settlers and the remainder from the company's limits.

The 75-ton groundwood mill which the American Perforated Wrapping Paper Co. of Albany, N. Y., are constructing at Sheet Harbor, N. S., is expected to start up early this month.

Merger Talk Again

As in the last few years, the approach of the annual convention of the Canadian Pulp and Paper Association was heralded by all sorts of rumors concerning impending changes among the large Canadian companies, more particularly in the newsprint field.

There has been a considerable amount of talk concerning the amalgamation of Spanish River Pulp and Paper Mills and of Abitibi Power and Paper Co., the former being the largest Canadian producer, with an output of about 700 tons a day in its three mills, while the latter has the distinction of

Making both ends MEET

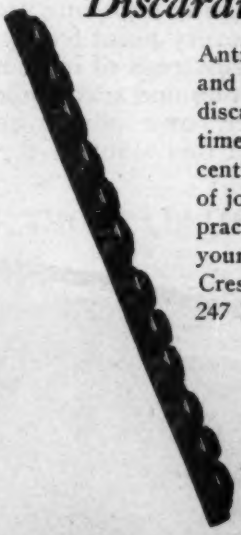
EVERY industry that turns a wheel must make both ends meet. And making belt ends meet is no small factor—production considered. Production depends upon the belt; the belt in turn upon its joining.

Continuous production

is the goal—eliminating unnecessary losses in time and labor. Many modern plants, by the standardization of Crescent Belt Fasteners have reduced belt joining troubles to a minimum—added to their continuity of production.

Discarding heirlooms

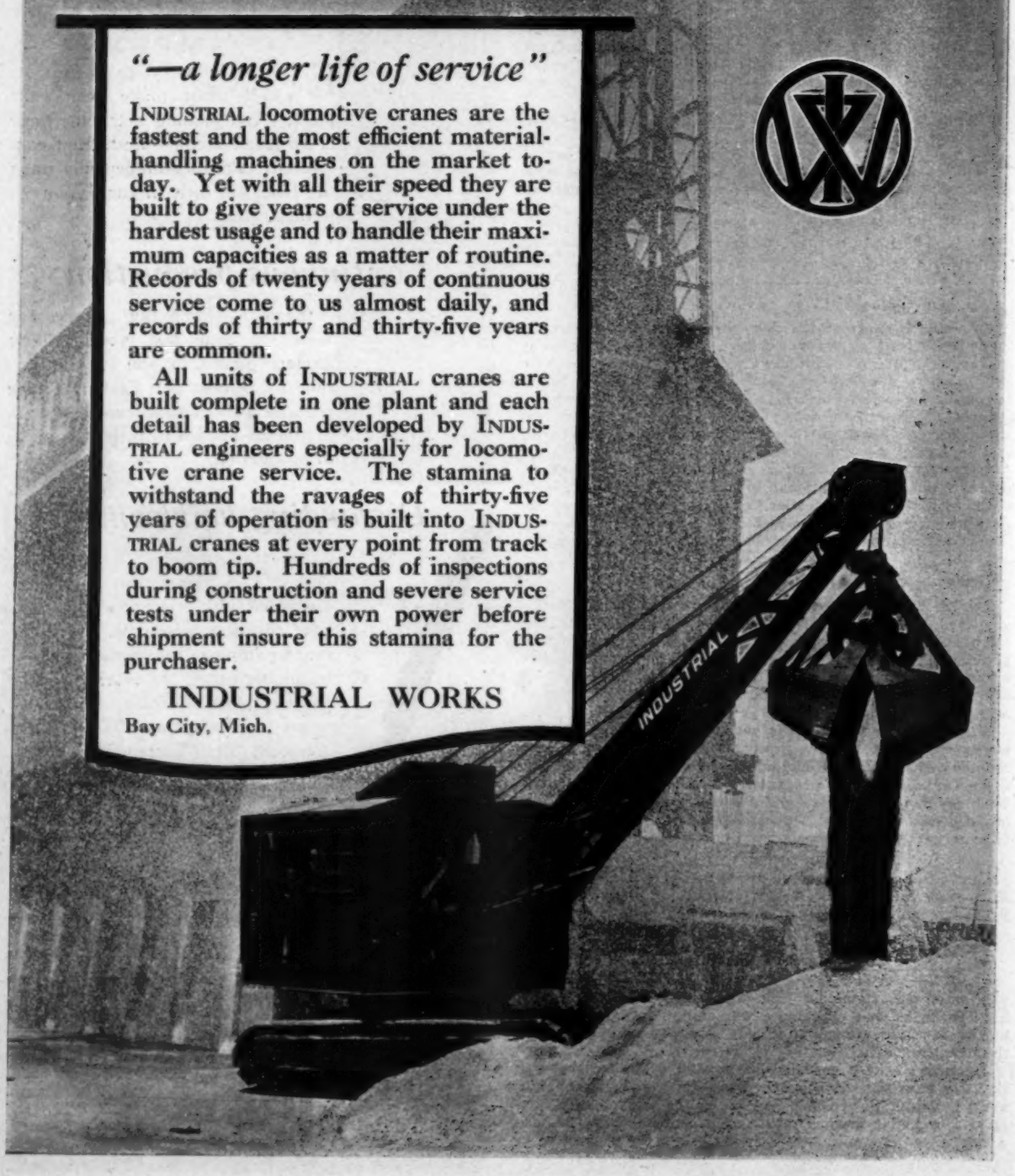
Antiquated methods which mutilate and weaken the belt fibres have been discarded with other production and time thieving heirlooms. A "Crescent" joining is the modern method of joining belts. An interesting and practical "belt joining" booklet is yours for the asking. Write to the Crescent Belt Fastener Company, 247 Park Avenue, New York.



A cross section of belting joined the Crescent way. Note the vise-like grip of steel on the lengthwise fibres. No bulging; or gaping holes in the fabric. Crescents outlast the belt itself.

CRESCENT BELT FASTENERS

INDUSTRIAL
CRAWLING TRACTOR CRANES



"—a longer life of service"

INDUSTRIAL locomotive cranes are the fastest and the most efficient material-handling machines on the market today. Yet with all their speed they are built to give years of service under the hardest usage and to handle their maximum capacities as a matter of routine. Records of twenty years of continuous service come to us almost daily, and records of thirty and thirty-five years are common.

All units of INDUSTRIAL cranes are built complete in one plant and each detail has been developed by INDUSTRIAL engineers especially for locomotive crane service. The stamina to withstand the ravages of thirty-five years of operation is built into INDUSTRIAL cranes at every point from track to boom tip. Hundreds of inspections during construction and severe service tests under their own power before shipment insure this stamina for the purchaser.

INDUSTRIAL WORKS
Bay City, Mich.

being the largest single pulp and paper mill under one roof and has a capacity of 500 tons of newsprint per 24 hours.

All attempts to obtain official information on the subject was unavailing, the managements of both companies retaining a most non-committal attitude and refusing to either confirm or deny the rumors. It is thought in usually well informed quarters that if there is really something at the bottom of all this talk, developments should be forthcoming in the not too distant future; but any forecast as to what will happen can hardly be considered as anything else than a haphazard guess.

International-Riordan Deal Still in Suspense

Nothing new has transpired in connection with the taking over of the Riordan properties and assets by International Paper. President Graustein of International has announced that negotiations have been started, and that International is considering the matter, but that no definite arrangements had been reached so far.

In the meantime there are any number of rumors floating around as to what will happen and how the two groups of bondholders will fare in the deal; but so far any one of these forecasts is as good (or as bad) a bet as any other.

Huge Wire Weaving Loom for Ottawa

Capital Wire Cloth and Manufacturing Co., Ltd., Ottawa, Ont., are now installing the largest wire-weaving loom ever built. This loom, which is expected to be in operation shortly, will weave a web of wire cloth 258 inches wide. The company now have under construction another loom, which will be delivered early in the spring, to weave wires up to 240 inches wide. This will make the eighteenth loom in their plant at Ottawa.

Their new extension, 100 by 45 feet, to the present building, is now under way, an indication of the sound connection of the company with the pulp and paper industry and of the satisfactory performance of Capital wires.

Dam Constructed in Record Time

During 1924 a record has been established by the interests constructing the Grande Décharge dams at Isle Maligne. More than 375,000 cubic yards of concrete have been poured at the huge works out of a total of over 600,000 cubic yards which will be required to complete the work. During the same period between 1,500 and 2,000 men have found steady employment at the works. According to information reaching the Running Streams Commission, current will be available from the dams next summer.

These dams are being built in connection with the large Duke-Price power development in the Lake St. John region, from whom Price Bros. have contracted for 200,000 horsepower for their present mill at Kenogami and for the mill which they are to erect at St. Joseph d'Alma.

The business of chemical merchants formerly carried on under the name of E. A. Schofield & Co. has been taken over by Schofield, Donald, Ltd., of which E. A. Schofield will be president and F. C. Donald vice-president. Offices will be maintained as before in the St. Nicholas Building, Montreal, and Bank of Hamilton, Toronto, and the policy remains unchanged. Expanding business has made necessary an augmented organization, in order to give careful attention to the demands of the trade.

Word has just been received of the death, in Florida, of Mr. Joseph Kilgour, of Toronto, head of Kilgour Brothers, Toronto, and president of the Canada Paper Company, Windsor Mills, Que. The funeral took place at Beauharnois, Que., on January 31st.

Laurentide Power Bond Offering

Formal announcement has been made by a Montreal financial syndicate of an offering of $1,525,000 general mortgage 5.5 per cent sinking fund gold bonds, series A, of the Lauren-

Graton & Knight double belts driving stock and water pumps

Better belts for paper mills!

BECAUSE a belt will give service under the ordinary dry conditions in a machine shop is no reason why it will stand up under wet work in a paper mill. *The belt must be made for the job.*

You find such belts in the Standardized Series—a grouping of Graton & Knight Leather Belts guarantee you the right belt for the right job.

These Graton & Knight Standardized Belts are made of tough, rugged leather. They are guaranteed water-proof! Won't come apart at laps or plies. Will even run in water without damage!

Each brand in the Standardized Series is made to do its own work best. To grasp the pulleys firmly without slippage. To deliver power with the least loss. Carefully *standardized* so when replacement is finally necessary, another Graton & Knight Belt is waiting to give you the same trouble-free service.

Write for our interesting book 101-S. It tells about Standardized Leather Belting for paper mills.

THE GRATON & KNIGHT MFG. CO.

Tanners—Makers of Belts and Other Leather Products

Worcester, Mass.

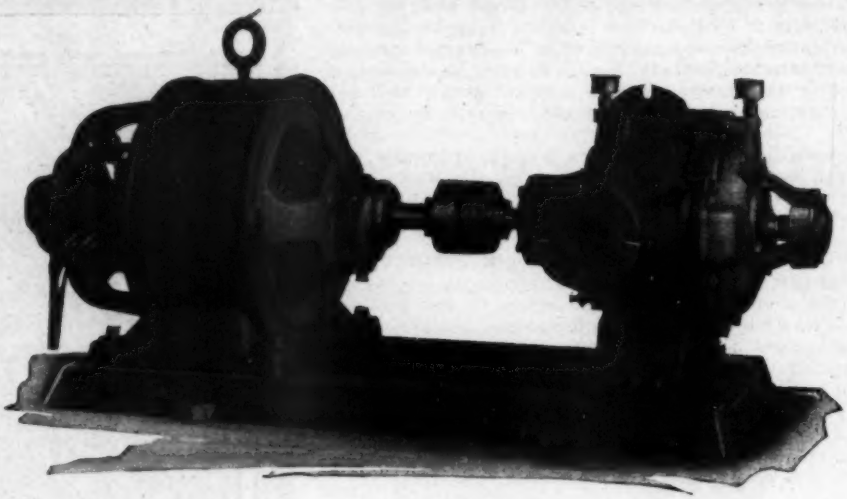
GRATON & KNIGHT

Standardized

LEATHER BELTING

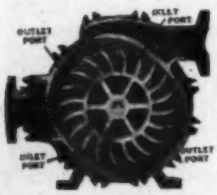
Nothing takes the place of Leather

GRATON & KNIGHT



Motor-Driven Nash Hytor Vacuum Pump, Size No. 1, having a capacity of 950 R. P. M., of 90 cu. ft. per min. at a vacuum of 12 in. mercury.

VACUUM— a vital factor in paper drying



Sectional view of Nash Hytor showing unique principle of operation

The rotor, consisting of a cylindrical hub around the periphery of which are chambers or spaces formed by heavy shrouds cast integrally, revolves freely in an elliptical casing or housing filled with water. As the rotor turns, it carries the water around with it. The water, under the influence of centrifugal force, is compelled to follow the contour of the casing, and alternately to enter and leave the rotor chambers, twice in each revolution.

As the water recedes from the rotor, air is drawn into the chambers through the inlet port. As the water is subsequently forced back into the rotor by the converging casing, the air is compressed and then discharged from the rotor through the outlet port.

To be certain of obtaining the necessary vacuum on suction boxes, flat boxes, wires, and felts, many mills are relying on Nash Hytor Vacuum Pumps exclusively.

And because the Nash Hytor produces a steady vacuum, it is ideal for use as a wet pump, that is for continuously handling large volumes of liquid with air. There is only one moving part, the rotor, and this is supported on a heavy steel shaft, mounted on oversize annular ball bearings in dust-proof housings outside of casing. All parts are made to a limit gauge basis and are interchangeable.

For facts and figures, write for Bulletin 11.

NASH ENGINEERING COMPANY

SO. NORWALK CONNECTICUT

New England Representative
Mr. Gilbert Howe Gleason, Nottingham Building, Copley Square, Boston, Mass.

Western Representative
Mr. Thomas H. Savery, Jr., 1324 Republic Building, Chicago, Illinois

Nash Hytor

VACUUM PUMPS AND COMPRESSORS

2018A-38

tide Power Co., Ltd., due January 1st, 1946. The bonds are redeemable as a whole (or in part for sinking fund purposes) on any interest date on three months' notice. The issue, which is unconditionally guaranteed as to principal and interest by Laurentide Company, Ltd., is a mortgage on all property now owned or hereafter to be acquired, subject to $6,971,500 of first (closed) mortgage bonds, also due January 1st, 1946.

The purpose of the issue will be to retire $1,391,000 of the present outstanding 7 per cent general mortgage bonds, due May 1st, 1941, for which the necessary arrangements have been made, thereby saving the company considerable interest payments and simplifying its financial structure. The net earnings of the company for 1924, available for the series A bond interest, are estimated at $785,300, as compared with $711,892 for 1923; while interest charges on the issue will amount to $82,500. Dividends at the rate of 5 per cent are now being paid on the $10,500,000 of common stock.

During the past year the operating cost of the plant was 16 per cent of the gross income from power sales. Since the plant started, in 1916, it has had no interruption from either mechanical or electrical sources.

Good Year for Boxboard Company

Boxboard Products, Ltd., London, Ont., report a good year's business. The company was established in 1922, its name then being the Security Egg Case Filler Co. of Canada, Ltd., which referred to their principal products, egg case fillers and egg case flats of any required size, and egg carton fillers for any size carton. The name was later changed to the present one, as they have since taken on the manufacture of other boxboard specialty lines.

They have had a rapid growth, their production rising from 20 tons a week in 1922 to 100 tons a week at the present time. The capacity of the plant is over four carloads of fillers a week.

The filler machines, which are designed and built by the company's own engineers and mechanics, are unique in being adjustable to make any size of filler required.

The Canadian Wax Paper Co., a new organization formed some time ago by Messrs. McArthur and Courtney, with the British-American Wax Paper Co., went into production about the middle of last month in Toronto, and made their first shipment of waxed paper. The new company starts out under favorable auspices, and report that they have already booked considerable business.

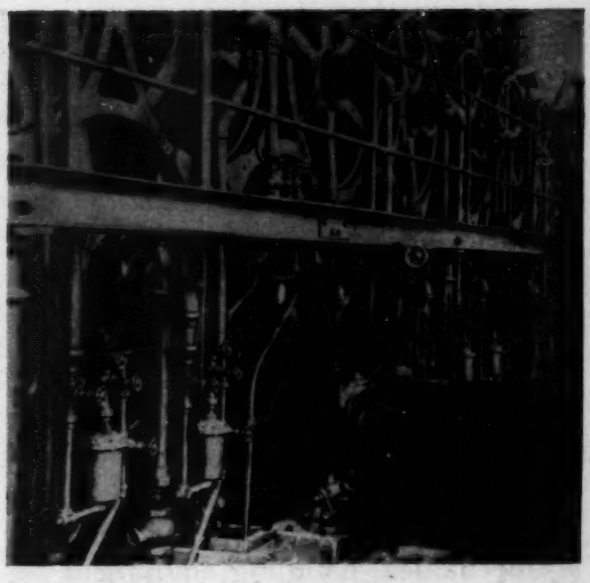
Dominion Engineering Secures International's Contract

The Dominion Engineering Works, Ltd., of Lachine, Que., have just secured the contract for the construction of the two new machines to be installed at the mill of the International Paper Co., at Three-Rivers, Que.

These machines will be designed to run at a speed of 1,400 feet per minute, which is some 300 feet more than has ever been attained so far. The machines will be 164 inches wide and will produce a trimmed sheet 156 inches wide. It will take a wire 100 feet long. There will be three presses and forty-six 60-inch driers. Both suction couch rolls and suction press rolls will be used.

The rewinder will be designed to operate at a speed of 3,000 feet per minute.

The Rudd Paper Box Co. were hosts to the staff of the organization at a luncheon held recently at the King Edward Hotel, Toronto, to which representative of the candy and biscuit trades were invited. George E. de Clercq, of New York, gave an address on the Robert Gain biscuit candy, for which the Rudd Company now have the manufacturing rights for Canada, while Paper Sales, Limited, will handle the selling end of the business.



The Armstrong has become a part of the paper industry

BECAUSE draining of condensation is an exacting part of paper making, the paper industry has been quick to recognize steam trap merit—and the Armstrong has been widely chosen as the paper mill trap.

No other trap has been able to rival it for paper mill service because no other trap can duplicate the advantages of the Armstrong submerged bucket principle.

The traps illustrated above are draining a paper machine dryer at the West Virginia Pulp and Paper Company mill at Tyrone, Pa. Each dryer is drained with an individual and standardized connection so that the traps are quickly removable and interchangeable. Careful tests have demonstrated that maximum efficiency is obtained in draining paper machine dryers with Armstrong Traps.

ARMSTRONG MACHINE WORKS

322 Maple St. Three Rivers, Mich.

The Standard Armstrong Trap is furnished for pressures from 0 to 300 lbs.—for service on vacuum where inlet pressure is greater than outlet pressure—for draining water from compressed air expansion tanks, separators, etc.—for service on grease. The Armstrong Special is furnished for pulsating pressures. Armstrong Steel Trap is for extreme high pressure and superheat.

Armstrong Steam Trap

P12-F-RTG

Dependable Equipment *for the* Power House

Modern equipment and careful operation are as essential in your power house as they are in any other department of your plant.

Frequently a poor showing in power costs is due to not practicing common sense economies. Many operators have recognized the need of mechanical handling equipment for distribution of coal and the disposal of ashes and are today enjoying reduced operating costs and increased efficiency. Your power plant, too, can be put on a profitable basis.

Your coal can be handled mechanically from railroad car to stoker and the removal of your ashes can be accomplished in a similar manner. Webster engineers, who have a vast background of engineering experience, will be glad to cooperate and plan with you. Their recommendations do not obligate you. Consult them.

Catalog sent on request

THE WEBSTER MFG. COMPANY
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Branch Offices
BOSTON CINCINNATI NEW YORK
BUFFALO CLEVELAND PHILADELPHIA

Pacific Coast News

February 2, 1925.

Port Angeles and the Paper Industry

The newsprint and boxboard industry in Port Angeles, Wash., has been growing from year to year, until now it rivals the great lumber industry of the peninsula. Port Angeles is located 84 miles from Seattle by the water route. The large mill of the Washington Pulp and Paper Corporation has a production of 140 tons of high-grade newsprint every 24 hours and recently installed the fastest newsprint machine in the world. Between 265 and 300 men are employed in the operation of the mill, besides pulpwood cutters, truckmen and construction workers. Lime rock is brought from Roche Island, Wash., and sulphur from Texas, by this mill, which makes its own acids and operates its own sulphite plant. A spruce wood-stick can go through the "chipper" in the morning and be in shape to print the afternoon daily the same day.

The Crescent Boxboard pioneered the paper industry in Port Angeles. The Crescent, employing about 275 men, manufactures and has a payroll of $30,000 a month. Their products include an annual output of about 7,000,000 square yards of wallboard, 9,000 tons of sulphite, 8,000 tons of ground wood, 12,000 tons of boxboard and thousands of egg-crate fillers.

Will Build a Tissue Mill

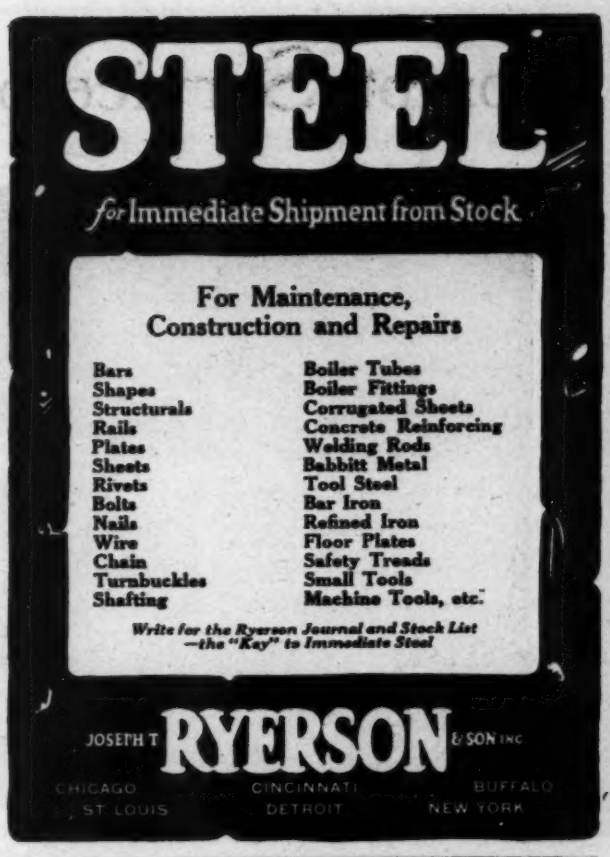
The Lewis River Pulp and Paper Co., which recently acquired a site for its plant on the Columbia River between Kalama and Martin's Bluff, have started clearing the site for the factory buildings. The company has increased its capitalization to $700,000 and will install an 18-ton tissue paper machine as well as the pulp mill originally planned.

A. D. Bowen of Portland, Ore., is the head of the company, and an associated company, the Alderwood Development Company, is platting the town-site of Alderwood, adjoining the mill site. H. J. Stilp, recently connected with the Oregon Pulp and Paper Co. and formerly with the Kimberly & Clark Paper Co., of Wisconsin, has been elected vice-president and general manager of the company. The pulp mill will have a daily capacity of 25 tons and a payroll numbering about 250 men.

Crown Willamette Plans Reforestation Program

The Crown Willamette Paper Co. has inaugurated plans for reforesting its extensive holdings of logged-off lands in Clatsop county. This paper company, the largest owner of timber lands in this county, has been cutting the ripe timber for years and now finds itself with thousands of acres of cut-over land, most of which is valueless for agricultural purposes and adapted only to the growing of coniferous trees. Natural reforestation is replacing the virgin stands with a new growth on some of these lands, but on others, where fires have burned out all of the seeds on the forest floor, there is no sign of a new crop and no prospect of one unless artificial reforestation is undertaken. The Crown Willamette Paper Co. is going about its program of reforestation in a systematic and scientific way. It has established a nursery which will grow 700,000 seedlings annually, at West Linn, Ore., and employs D. M. Calderwood as supervisor of the conifer nursery. Mr. Calderwood is a nurseryman of long training and experience and an expert in conifer culture, being connected for six years with the United States Government nursery at Wind River, Wash. J. H. Walker, field superintendent, studies the lands to determine what variety of conifers will do best upon them and proposes to reforest each year an acreage as large as that which its loggers denude, so that its supply of pulp wood will be perpetual.

The Crown Willamette Co. has initiated the reforestation by private owners of timberlands and it is hoped that others will follow the example. This is held back by the tax laws of the State of Oregon. Unless the state relieves the owners of these logged off lands from the burden of heavy taxation during the years required to develop a new crop of timber to a merchantable status, it is not reasonable to expect that much effort will be made by the owners to grow new crops.



Be Firm—DEMAND
ALBANY GREASE
The 100% Lubricant Never Drips
Trade Mark
Play Safe! Use it on your shafting, conveyors, grinders, etc. and be benefited immediately.
PROTECT YOURSELF: Look for the Albany Grease Trade Mark on every can and barrel you buy. Samples on request.
Your dealer can supply you. If not, write us.
ADAM COOK'S SONS, Inc.
714-716 Washington St.
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Prompt Service on Hamilton Felts

You will recognize Hamilton felts by two blue lines running the full width of the felt with one shorter blue line between them.

YOU can secure delivery on Hamilton felts under all ordinary conditions in two weeks from the time the order is placed. We realize that quick service is part of the responsibility of a felt manufacturer, and that we can't hold accounts if paper machines are shut down through non-delivery of felts. For that reason we have adopted a policy of having an excess of equipment in all departments, to care for rush requirements. This effort to give our customers especially good service costs money—but it is worth it to our customers.

Customers who give us definite orders by periodical shipment of felts are never disappointed.

Hamilton Service men are familiar with a wide variety of conditions in hundreds of mills. This wide experience may be valuable to you. Send for them.

SHULER & BENNINGHOFEN **Hamilton, Ohio**

The Miami Woolen Mills **Founded 1858**

Hamilton *Felts*

If these replanted forests are given a low assessed valuation during the time the trees are maturing so that the ultimate value of the timber will not be eaten up by taxes, private reforestation will be greatly encouraged. A severance tax, collectable when the timber is cut, would insure the state against loss of revenue, or perhaps some other plan, fair to both state and timber owners, can be hit upon. The whole future of reforestation, however, depends upon legislation that will make it advantageous to the owners of logged-off lands to follow the example of the Crown Willamette Company.

It has been only a short while since the Crown Willamette Paper Co. introduced new logging methods which salvage the small timber which is uprooted and torn down in the process of removing the big trees with the high lead system, and effecting a saving estimated at 25 per cent. The same company is now pioneering the movement for private reforestation.

Service Pins to Old Employees

The first annual foremen's banquet of the Lebanon (Ore.) branch of the Crown Willamette Paper Co. was held recently at the Hotel Lebanon. These banquets have been an annual affair with the mills of this company at West Linn, Ore., and Camas, Wash., for some years past, but this is the first event of the kind to be held by the local organization. The Lebanon foremen and numerous executives and department heads of the Portland office and the other mills of the company were present. Senator S. M. Garland was the principal speaker of the evening, after which came the presentation of service pins to those employees who had been in the company's service for twenty years or more. The service pin is a new idea recently undertaken by the officials of the company, and the pins are very highly valued by the old-time employees. The pin, bearing the imprint of a crown over the Willamette Falls, which is surrounded by fir trees, is about one-half inch in diameter. For every additional five years a large diamond is added to the pin. Those receiving pins this year were: William Robbins, who has been in the service since 1880; Chris Michels, 1891; Barney Michels, 1901; F. A. Heinrich, 1892; J. O. Morris, 1904, and John McGowan, 1890.

New Sales Manager for Crown Willamette

Ralph L. Brackett, ex-owner and founder of the Crescent Paper Co., will take charge of the sales department of the Crown Willamette Pulp and Paper Co., with headquarters in San Francisco. Mr. Brackett was one of the original founders of the Crescent Paper Co., in 1904, which conducted a general brokerage business in paper throughout the northwest, with headquarters at Front and Oak streets, Portland, Ore. Mr. Brackett will leave Portland soon for San Francisco to assume his new duties.

The Crown Willamette Company's interests extend from the North Pacific Coast to the Atlantic. The company is one of the world's largest producers of newsprint, wrapping, tissue and fruit paper and paper bags.

150,000 feet of white fir timber were recently delivered to the Salem Paper Mills by Paul and Pete Miller. This is their second shipment which has been made from Colorado Lake by floating the timber down the river. A small river boat was used that made the trip in about eight hours from the landing in Linn county to Salem. The Miller boys also have been floating considerable of the piling for the Burnside bridge, in construction at Portland, from the Santiam River basin.

Merger of Two Old Companies

The Crescent Paper Co. has been merged with the Blake-McFall Co., pioneer wholesale paper concern of the Northwest. The Blake-McFall Company began business here about 50 years ago and the Crescent Company came into existence 20 years ago.

"The personnel of the newly acquired business will largely be retained," says O. W. Mielke, vice-president of the Blake-McFall Company, who will serve as general manager of the enlarged organization, "but Charles R. Franzir and Ralph

Moore & White Friction Clutches Eliminate Transmission Troubles

Paper Mills find their use effects a great saving in power consumption

Sturdily built of superior design, and assembled by expert workmen, the Moore & White Friction Clutches are well able to stand up and give long and economical service under the most trying conditions. More than 100,000 now in successful operation in all parts of the world, driving machinery of every description. A vast number is now in use in the paper mills of the United States and Canada. Made in high and low speed types.

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Established 1885

North Philadelphia Station, Penna. R. R.

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New England Representative: Gilbert H. Gleason, Nottingham Bldg., Boston, Mass.

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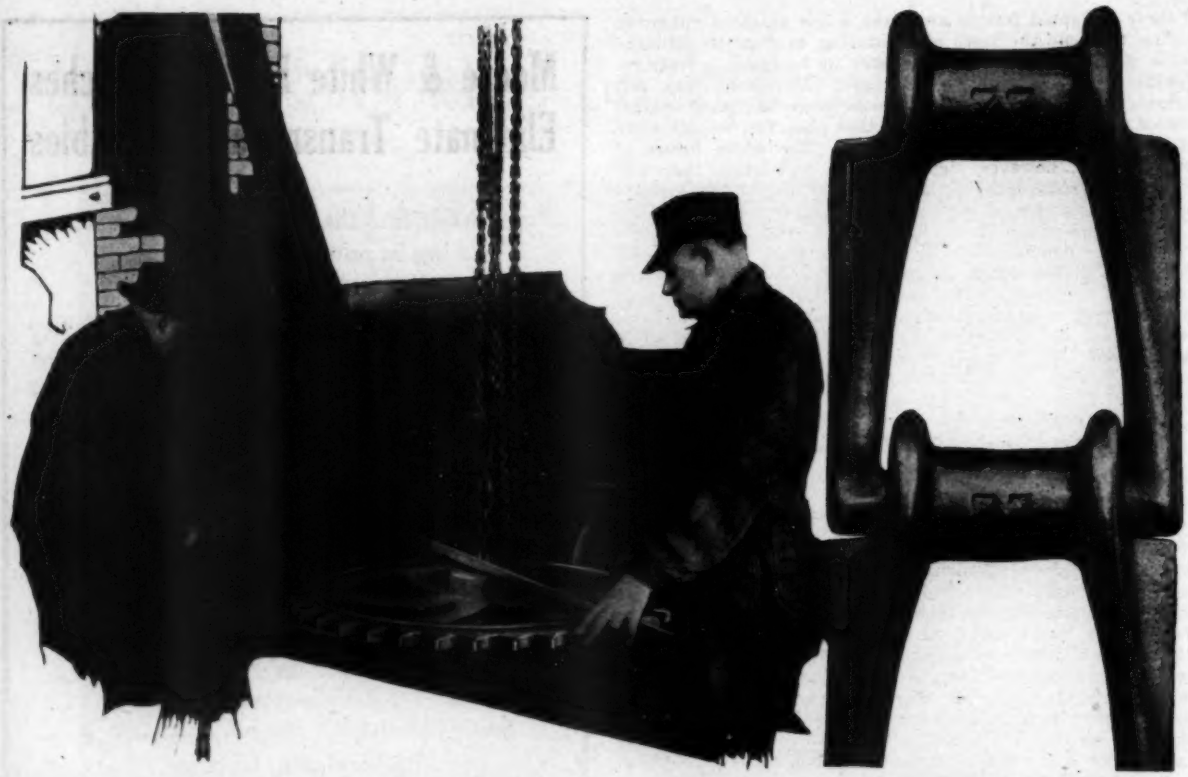
If you have bearing troubles we are prepared to help you. Nothing too large or difficult. Our bearings are standard and extensively used in paper machinery.

Let our engineers solve your problems.

The Orange Bearing Co.

ORANGE, N. J.



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TAILORED sprocket wheels—if you want to call them that—Link-Belt Sprocket Wheels, made to exactly fit chain of standard pitch.

You wouldn't think of telephoning a tailor and asking him to make up a suit that ought to fit a man like you—so many feet tall, weight so much—and so on.

Well, it's just that way with sprocket wheels—they have to be "tailored" to fit the chain with which they are to work. Because the chain is standard—its links cannot adapt themselves to the hit-or-miss type of wheel.

To avoid "hand-me-down" results—and gain the ultimate in fit (which means longer service)—specify Link-Belt Sprocket Wheels. *Insist* upon them. They're available everywhere—and they're making good everywhere.

The ideal combination for shop results and efficiency, is >FLINT RIM< Sprocket Wheels with Link-Belt famous double arrow chain. This is the mark >——<. Both tested.

1773

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LINK-BELT

THIS YEAR LINK-BELT IS FIFTY YEARS OLD

Chains and Sprocket Wheels

L. Brackett, who have been active in the Crescent Paper Co., will retire; other officers and employees will continue with the consolidated concern. Those who remain with the business include C. L. Shorno, who has been vice-president and manager of sales. The main office shipping and stock rooms," continued Mr. Mielke, "will be kept at East Third and East Ankeny streets. Service to the trade of this immediate territory will be from the east side or newly acquired west side store, according to convenience." Officers of the company are C. D. Brunn, president; O. W. Mielke, vice-president and manager; F. C. Wasserman, secretary-treasurer.

Wisconsin News

February 2, 1925.

Nepco Employee's Benefit Ass'n Hold Meeting

The annual meeting of the Nekoosa Edwards Employees' Benefit Association was held at the Clockhouse at Port Edwards, Wis., on Tuesday, January 20.

The reports showed a membership of 743, and a cash balance of $15,879.57, which was a gain of $4,574.37 over 1923.

During the year benefits were paid as follows: Sickness, $10,295; accidents, $548; deaths, $1,250; hospital, $1,228; medical, $937.

From the above it will be noted that the members have secured a large amount from this association, the largest of which was for sickness.

The association started some few years ago, and has since its organization grown until now a large percentage of eligible employees are now members. The dues are very nominal being only $1 per month, while the benefits are $2 per day for sickness and $2 per day hospital allowance. Death benefits according to eligibility, but ordinarily $1,000.

The following officers were elected to serve for the year 1925: President, G. H. Suhs; vice-president, Fred Goddard; secretary, R. C. Peterson; executive committee, A. P. Mulroy, F. H. Rosebush and G. H. Suhs.

One of the recent outstanding features was that the above association had all of its members vaccinated against small pox.

Annual Meeting of Consolidated

George W. Mead, president of the Consolidated Water Power and Paper Co., of Wisconsin Rapids, was re-elected to that office at the annual stockholders' meeting held January 28, 1925, held at the company's offices. With him were re-elected the four other officers who have served the company for a number of years. They are R. L. Kraus, vice-president; Geo. P. Berkey, vice-president; I. P. Witter, treasurer; E. B. Redford, secretary.

The annual meeting of the directors was preceded by the annual meeting of the stockholders of the company, at which the annual report of the president, Mr. Mead, was submitted and the old board of directors was re-elected for the ensuing year. The directors are G. W. Mead, R. L. Kraus, G. P. Kerkey, I. P. Witter and T. W. Brazeau.

The stockholders of the company enjoyed their annual treat in the form of a crate of oranges shipped from Florida by George McMillan, himself an old stockholder of the company.

The officers of the Thunder Bay Paper Co. and Port Arthur, Ontario, the canadian subsidiary and other allied companies are substantially the same as those of the home company.

Smallpox in Wisconsin

The smallpox scare has again hit Wisconsin, and while there are not many cases reported in the different mill towns, nevertheless, there has been some brought into some of the mill cities.

At the Mills of the Nekoosa Edwards Paper Co., at Port Edwards and Nekoosa, an order was issued requiring every man to be vaccinated. This was done during the forepart of January and almost every employee of this company was vaccinated. This was done through the Nekoosa Edwards Employees' Benefit Association who paid for this work, the vaccination service being performed by Drs. Waters and Pomainville.

As in the above case the employees of the Kimberly Clark

RHOADS LEATHER BELTING

Tannate's Tractive Grip Increases Output

FOR difficult drives it is hard to beat Watershed Tannate. It is more than a waterproof belt. It is very resistant to machine oils and will stand up in wet steam temperatures of 200 degrees or even more.

It has 20% more overload capacity than even our best oak belt; and is so long lived and free from stretch that it proves economical on many drives where it is simply a question of hard work.

Less stretch, less slip, long life and greater output count big in making it profitable to you.

Rhoads Tannate Lace Leather

If you use lace leather, Tannate should save you money. It resists both heat and moisture and outlasts rawhide three to five times.

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Pickering Governors

Universally adopted in Paper Mill Service because of economical operation. Standard equipment of many leading Engine Builders.

Catalog 24 on request.

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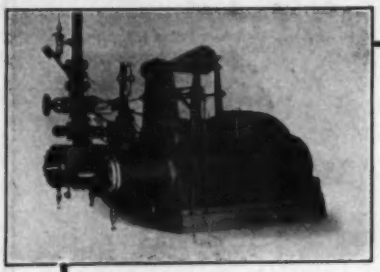

That Cloud of Steam Escaping Through Your Roof Is DOLLARS LOST!

It Costs NOTHING to Find Out How Much a

PROSSER Variable Speed Engine

WILL SAVE YOU

NOTE—
Speed variations can be controlled electrically from anywhere in the mill.

Write to **CHANDLER & TAYLOR CO.**
INDIANAPOLIS, INDIANA

Orders for New Machines and Alterations to Old Ones Proceed Apace

In addition to our numerous orders for specialties, we are busy on two new paper machines, also several large alteration jobs. Many of the mills find it advantageous to make necessary changes to the machines when shut down. We are prepared to submit prices and specifications on new machines or alterations to old ones, sending an engineer to look over the ground if desired.

The Moore & White Co.

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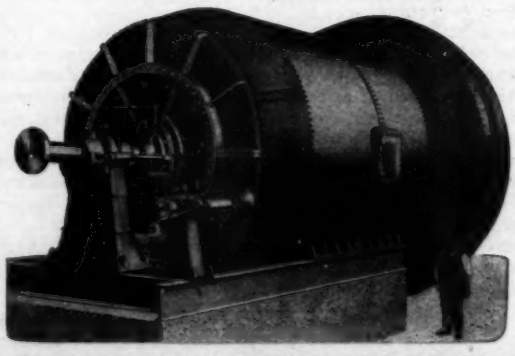
TURBINE WATER WHEELS



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All of our turbines are designed and built to suit location and requirements, by engineers and experts who have had years of experience in this particular line of work. Turbines fully guaranteed.

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LANCASTER, PA. ..... Woolworth Building
PETERBOROUGH, ONT., CANADA .... William Hamilton Co., Ltd.

Co., of Kimberly, were vaccinated free of charge through the efforts of that company. Most of their employees were vaccinated.

It is not known just what the orders have been for vaccination in other mills specifically, but it is known that in a great many mills where there is the least chance of an epidemic that the employees are being urged to be vaccinated.

As far as is known none of the employees of any company who have received this treatment has contracted the disease.

Illinois Gets a Wisconsin Industry

New evidence that there is more than idle talk in the allegations that Wisconsin's tax laws are having an unfavorable effect upon the development and expansion of industry in this state is contained in the announcement at Beloit yesterday of the purchase by the Beloit Iron Works of a 32-acre tract just over the state line in Illinois, to which it is ultimately proposed to move the company's plant.

Tax laws, of course, are not the only element considered by the Beloit company. No concern can afford to pack up and move just for the sake of a more favorable tax rate. But when expansion is necessary and when other factors seem equal, as in the case of the Beloit Iron Works, this expansion takes place out of the state and Wisconsin is the loser.

Elbert H. Neese, general manager of the company, put the case very plainly in announcing the company's decision. He said:

"The Beloit Iron Works has purchased 32 acres of land in Illinois with a view to moving its plant to a location outside the state of Wisconsin. We have been prompted to do this largely by the fact that in Wisconsin the tax laws are such and the tendency of Wisconsin legislation is such, that we cannot see our way clear to expand this business further in this state.

"We are at the present time under a great disadvantage in doing business in Wisconsin in competition with manufacturers located in other states where laws are not so unfavorable and where taxes are not so high."

We leave Mr. Neese's remarks with our readers to take or leave as they see fit. We don't know all the circumstances and can't say whether tax laws are the important factor involved or not. But this much is plainly true: The Beloit Iron Works are planning to expand outside of Wisconsin and the manager of the company says it is because of the tax laws. This state loses possible industrial development and gets a lot of very undesirable advertising.

Nepco Holds Annual Meeting

The annual stockholders and directors' meeting of the Nekoosa Edwards Paper Co. was held at the company offices, at Port Edwards, on Wednesday, January 21.

The following officers were elected: L. M. Alexander, president and general manager; Judson G. Rosebush, vice-president; C. A. Jasperson, secretary; John E. Alexander, treasurer and assistant general manager; L. E. Nash, sales manager.

The board of directors elected comprise the above and Mr. G. W. Kibby, Mr. F. J. Wood, Mr. L. M. Hanks, and Mr. J. B. Nash.

Reports and statements presented to the stockholders showed that very good results had been obtained in the year of 1924.

Wisconsin River at Low Stage

The low stage of the Wisconsin River is causing considerable trouble throughout the Wisconsin River Valley, as production in the groundwood mills in most mills has been curtailed to almost a minimum and in some instances the mills are barely able to keep their prime movers going.

On account of the low water the Consolidated Water Power and Paper Co., of Wisconsin Rapids, shut down their sulphite mill for the week of January 12th to 17th, and approximately 100 men were out of employment during that week, as it was necessary to do this on account of the shortage of power. The men effected were employees of the sulphite mill, wood room and other related departments.

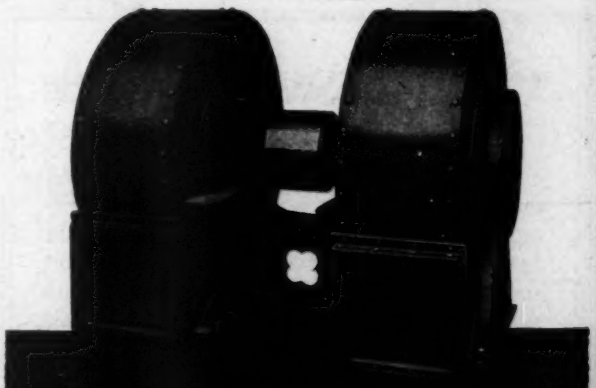
Some of the mills in the valley that are well equipped with steam turbines are not handicapped at all, but those

Standard Self-Aligning Belt Fasteners

Patent Applied for

Another step forward in fastening belts.
The standard Self Aligning belt fastener was designed to eliminate time losses, and reduce belt trouble to minimum due to carelessness in applying.
Plates are self aligned across belt.
Rivets are self aligned lengthwise of belt.
Plates are curved, joint hugs the pulley tightly.
Economical only one-half the usual rivets required.
Belt quickly joined or taken up.
Plates can be used repeatedly.
Displace less belt material than other methods.
Stronger joint.
Eliminates the breaking of the belt at the back of fastener.
Only five sizes of plates and rivets required for belts.
Single to 8 ply.
Ask your Mill (Supply) House for them, or send for samples for trial.

The Bourne-Fuller Co-Upson Works
Unionville, Conn.
Also manufacturers of Standard Malleable and Steel Belt Fasteners.



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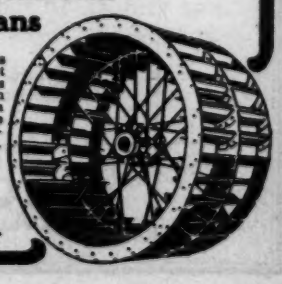
the "basis" of all Bayley systems, moves the greatest volume of air with lowest power and upkeep cost. Its design affords great strength with little weight, and in addition occupies little space. Built in various sizes, either single or double mounts, with outlets in any desired positions; for engine, motor or lineshaft drive.



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THE SPECIALTY MILL

We request the opportunity of helping solve your paper problems

We specialize in Papers made from Bleached Sulphite and BLEACHED SULPHATE Pulps

Sulphite Bonds.... Lace and Doily Papers.... Register Machine Papers .... Heavy Weight Waxing Papers.... Carton, Pail and Can Stock

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BEST IN THE LONG RUN

that are not are under serious handicap at this time. The large stocks of groundwood that were piled up during the past summer and spring of 1924, when the Wisconsin River was at the most favorable stage in many years for the grinding of pulp, are rapidly diminishing.

However, it is hoped that within a very short time that conditions will be such that all mills will be back on a full operating schedule.

Michigan News

February 2, 1925.

Outlook for 1925 Good

That business will be good during 1925, is stated by the following reports from the different managers in the Kalamazoo valley.

A. G. Gilman, president and general manager of the Allied Mills States: "In our opinion, general business and the paper business in particular for 1925 promises everything that the forecasters of pre-election days had to say about it." The paper business has improved, in sympathy with the general market trend. Orders for book and coated papers are good and we feel that during the coming year the slack period that has existed will all be taken up, and those mills that are physically fit will be able to show something on the right side of the ledger. We have been putting our house in order with this in view. Prices will be fair with a tendency upwards."

Felix Pagnostecher, president and general manager of the Bryant Paper Company states: "Everybody expects and all signs seem to point toward better business for the entire year of 1925. There seems to be nothing at this time to indicate these signs will fail."

Jacob Kindleberger, president of the Kalamazoo Vegetable Parchment Company, states: "It does not take much of a prophet to predict that 1925 will be a better year than 1924. All signs on the horizon tell us this will be so. Personally, I believe it will remain so. Personally, I believe it will remain good the entire year, provided we do not get greedy and raise prices beyond a reasonable figure."

Merrill B. King, president and general manager of the Rex Paper Company is also very optimistic for the present year. "As far as we are able to find out 1924 has shown a marked improvement over any year since 1920," he states. "The mills in this valley we believe have run in excess of 90 per cent of their capacity. We ourselves have been operating 100 per cent and feel we have no complaint. Of course, prices have not been the best but believe these will gradually work up to a standard basis. As to 1925, we have the utmost confidence. We can see no reason why we should not enjoy a good healthy condition. There are many reasons for this, among the foremost the carrying out of the Dawes plan. This should have its effect and our exports should be increased materially. We believe the adjustment period is now drawing to a close, and that prices are reaching the point of stability and, although we look for no boom, we believe we have three or four years of prosperity ahead."

Annual Meetings

Kalamazoo Vegetable Parchment Company.—Jacob Kindleberger, president of the Kalamazoo Vegetable Parchment Co. predicts that 1925 will be the best year in the history of that concern from a business standpoint. That is based on prospects of a generally fine business in all lines, orders booked at this time and the physical condition of the plant. At the annual meeting of the company held Tuesday afternoon, January 27th, he was able to report to the stockholders that the No. 2 mill is now operating at near capacity. All difficulties originally confronted in adjusting and operating the big 164 inch fast running Fourdrinier have been overcome and the machine is showing a profit.

The annual election of officers and directors resulted in present incumbents being retained. Those renamed are: Directors: Jacob Kindleberger, Frank Mosteller, C. S. Campbell, W. M. Loveland, W. O. Jones, Austin B. Read, C. H. Stearns, A. B. Connable and W. J. Lawrence. President, Jacob Kindleberger; general manager, R. H. Hayward; first

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Protection of metals regardless of conditions

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53 WEST JACKSON BLVD., CHICAGO
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New Sand Filter

A SPECIAL filter for paper mills, producing all the results the paper manufacturer desires. It is a modification of the well known Hungerford filter adapted to paper mill use. It is constructed of concrete, strictly wrought iron pipe, brass strainers and especially prepared silica sand. It is as durable and efficient as can be built at any cost. It can be sold at a very low figure.

This filter gives perfectly clear water, washes thoroughly, does not require renewal of the sand bed, is absolutely reliable in the performance of its duty and requires a minimum amount of attention.

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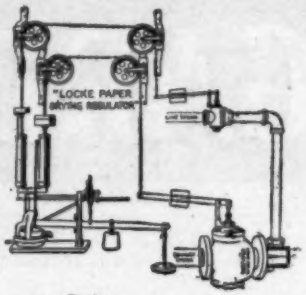
LOCKE Paper Drying Regulator



This regulator controls both live and exhaust steam for any purpose where steam is used, or it will control the direct steam when used alone. Is unlike, both in construction and operation, any device that has heretofore been designed for this purpose. Controls not only temperature of the dryers when paper is running over them, but maintains the same temperature whenever there is a break in the paper. This machine is most sensitive to any change in temperature of dryers, yet it has been found to be perfectly reliable and what is more, is not continually getting out of order.

Trade LOCKE Mark Reg. U. S. Pat. Off.

Locke Regulator Co., 700 North St., Salem, Mass.

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With Flexible Blades, Universal Adjustment and Control (PATENTED)

WARREN IMPROVED PATENT DOUBLE DRUM WINDERS

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Power Transmission Machinery

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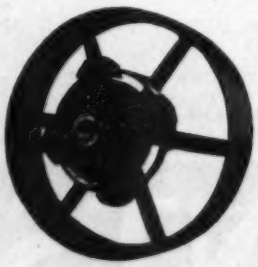

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MANUFACTURERS *of*

Paper & Pulp Mill Machinery

vice-president, Frank Mosteller; second vice-president, James A. Greenlee, Chicago; secretary, S. Ward Kennedy; treasurer, C. S. Campbell.

Sutherland Paper Company.—All the officers and directors of the Sutherland Paper Co. were re-elected at the annual meeting of the corporation held January 26th. The directors are: L. W. Sutherland, F. W. Sutherland, O. F. Miller, Frank B. Eilers, F. M. Hodge, Walter L. Otis, Fred Appledoorn, Edmund W. Chase, Kalamazoo and A. M. Meincke, Chicago. President, L. W. Sutherland, vice-president, O. F. Miller, treasurer, Walter L. Otis, and secretary, F. W. Sutherland.

Bradford Paper Company.—The Bradford Paper Company, organized in September, 1924, for the manufacture and sale of coated paper, has re-elected all temporary officers and directors. The personnel includes: Directors, C. A. Bradford, George K. Taylor, John L. Hollander, H. Clair Jackson, Harry A. Young, and J. G. Fox. President and treasurer, C. A. Bradford, vice-president, George K. Taylor secretary, H. Clair Jackson.

Production in the new plant in Fulford street will begin within 30 days, and reconstruction of the building is about completed and machinery is now being installed. Four Waldron coaters, two trimming 73 inches and two to trim 62 inches, have been ordered. The larger ones are now in place. Considerable of the auxiliary machinery is arriving and two Norwood super-calenders are now on the road. The drying system in the coating room is the product of the J. L. Ross Engineering Co. and several interesting and unique features have been adopted in the installation. Clarage fans have been used. The Kalamazoo Blow Pipe Co. installed the radiation system. A traveling crane will be installed to faciliate the handling of heavy rolls. Power plant has been overhauled and is now ready for operation. All machinery will be electrically driven. The building, 120 by 260 feet in dimensions, is splendidly adapted for the needs of the industry.

Hawthorne Paper Co.—Indications for an excellent run of business during 1925 are reported by officials of the Hawthorne Paper Company. The plant ran at capacity a good portion of 1924 and orders have been steadily increasing during the last three months.

The annual meeting was held Thursday evening, January 22, and resulted in re-election of all officers and directors as follows: Directors: A. H. Dwight, R. L. Pease, S. B. Monroe, J. H. Dewing, C. H. Kleinstuck, W. E. Chase, A. G. Wightman. President, A. H. Dwight; vice-president and secretary, R. L. Pease; treasurer, S. B. Monroe.

MacSimBar Paper Co.—An unusually satisfactory showing was made during 1924 by the MacSimBar Paper Co., according to reports presented at the annual meeting of the corporation, held Thursday, January 22, in the general offices. There was a substantial increase in the 1923 earnings though the board market is still unsatisfactory. Work is progressing steadily in the erection of the new power plant and pump house and both units will soon be ready for the installation of machinery and equipment.

All directors and officers were re-elected for the current year as follows: Directors, W. S. Thompson, Detroit; George D. Cobb, S. C. Earl, W. E. Kidder, S. B. Monroe, Kalamazoo; C. E. Nelson, S. W. Simpson, Florence E. Bardeen, Otsego; Fred C. Hall, Grand Rapids, E. W. Stone, Allegan and Edward Vanderveen, Holland. President, C. E. Nelson; vice-president, S. W. Simpson; secretary-treasurer, S. B. Monroe; assistant secretary-treasurer, George D. Cobb.

Rex Paper Company.—With an unusually large number of advance orders booked, the Rex Paper Company enters upon what promises to be one of the most prosperous years in its history. These facts were disclosed at the annual meeting in the company's general offices.

During the last 12 months interesting changes have been made in the official personnel of the company. The retirement of Clarence A. Bradford as vice president and director, resulted in the advancement of Harry H. Creamer of Minneapolis to the post of vice-president and the election of Clarence L. Harter, plant superintendent, to the directorate. C. A. Buskirk, formerly with the Wolverine Paper Co., Otsego, was placed in charge of sales .

In the annual election Mr. Creamer and Mr. Harter were

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One man can do more work with a Reading Multiple Gear Chain Block than with any other, and with less effort, simply because its balanced train of spur gears use all the power.

Shock proof design! Self-adjusting brake, takes up its own wear. Automatic lubrication! The working parts operate in a bath of oil. Capacities ¼ ton to 20 tons.

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The Finest Wood Suction Box Cover Made

All "M&W" Wood Suction Box Covers are made of specially selected hard rock maple, drilled from both sides on a machine built solely for this work. Fourdrinier wires last longer when using M&W Suction Box Covers. These Covers are reasonably priced, and quick delivery can be made.

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Established 1885
North Philadelphia Station, Penna. R. R.
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R. B. HARBISON
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W. E. MANSFIELD
Atlanta Sales Agent
Grant Bldg., Atlanta, Ga.

R. W. REMONT
Pittsburgh Sales Agent
Farmers Bank Bldg., Pittsburgh, Pa.

retained on the boards of directors. The others re-elected were: Merrill B. King, Harry C. Bradford, Roy V. McCulfor, W. J. Lawrence of Kalamazoo and William G. Irwin, Columbus Ind. All officers were re-elected, Merrill B. King, president and general manager, Harry H. Creamer, vice-president, Harry C. Bradford, secretary, Roy V. McCulfor treasurer and C. A. Buskirk, sales manager.

Illinois Envelope Company.—Present officers and directors of the Illinois Envelope Co. were continued in office for another year as a result of the annual election Tuesday afternoon in the company's offices. They are: Directors, W. B. Milham, V. T. Barker, M. S. McKinstry, C. Allen Fox, Ave Van Bockove, Charles Clarage, O. A. Milham. President, W. B. Milham, vice president, V. T. Barker, secretary treasurer, M. S. McKinstry.

Watervliet Paper Company.—A remarkably successful year was enjoyed by the Watervliet Paper Co. during 1924, according to the report issued at the annual meeting of the corporation, Wednesday, January 21st, at the Park-American Hotel. Numerous heavy orders that will run the mill for months in advance were reported at this time.

The campaign of developing and conditioning the plant, inaugurated in 1923, was continued throughout the last 12 months. Considerable new equipment has been installed, notably in extending the capacity of the power plant. During 1923 a 2,200 horsepower Nordberg uniflow steam engine was installed and to this was added two turbines in 1924.

The annual election of officers and directors resulted in no changes in the official personnel, continuing as follows: Directors, W. M. Loveland, Charles B. Hayes, A. B. Scheid, Fred Scheid, James B. Balch, John A. Pyle, Kalamazoo; W. M. Baldwin, Frank Gilchrest, Watervliet, and Harrison Geer, Detroit. President, W. M. Loveland, vice-president, Charles B. Hays, secretary, Frank D. Gilchrest, treasurer, A. B. Scheid.

The Allied Mills Change Stock

The Allied Paper Mills, operating the King and Monarch divisions in Kalamazoo and the Bardeen division in Otsego, manufactured and sold 2,725 carloads of paper during 1924 or to be exact 10,893,803 more pounds of paper than were made during 1923. The concern paid $1,566,369.85 in wages in 1924, over 70 per cent being disbursed in Kalamazoo, the balance in Otsego.

The above were among the interesting facts recited by President Alex. G. Gilman at the annual meeting of the stockholders Wednesday morning, January 28th, in the Chamber of Commerce rooms at the Press Building. Mr. Gilman was also able to add that the company faces its most prosperous year, his statement being based on the general outlook for business.

During 1924 this concern expended $116,412.39 in improvements of its various units. On the King Division alone $71,211.67 was spent during the last year, with improvements on the Monarch costing $24,412.07 and the Bardeen, $20,788.65. The stockholders furthermore authorized the expenditure of $125,000 more during the first half of 1925 thus making it possible to complete the work of bringing all properties up to the highest state of efficiency and productiveness.

Important recent betterments at the King division include the complete rebuilding of the third and fourth machines. No. 4 was rebuilt last spring by the J. H. Horne and Sons' Co. Lawrence, Mass. Beloit Iron Works is now engaged in rebuilding the No. 3 machine along similar lines. In addition this unit will be driven by a Prosser type high-speed engine, manufactured by Chandler and Taylor. This is an exact prototype of the engine installed last spring for the operation of the No. 2 paper machine and found to work so successfully. By these improvements the production capacity of the King division will be increased fully 25 per cent, or from 150,000 to 185,000 every 24 hours.

During the last year both paper machines in the No. 1 mill of the Bardeen division have been equipped with new drives, increasing the capacity from 40,000 to 50,000 daily. The next improvement authorized at Otsego is the erection of a new boiler plant to supply adequate power for the No. 1 mill. This building will be of reinforced concrete steel and brick and of the most approved type in every way.

President Gilman has ordered three 300 H. P. Wicks boil-

Fewer Breakdowns and More Paper

To turn out the most pounds of paper, per year, per machine, at the lowest cost:

Use Group Drives and Waterproof Leather Belts.

Group drive means lower equipment cost, lower maintenance, and greater production due to freedom from breakdowns. One big plant showed, recently, less than one-sixth as many breakdowns on group as on individual drives.

Waterproof leather belts grip and transmit as nothing else does—working in water or out. Wet or dry, they run sweet and free with the lowest friction loss and the least slip. They don't cramp shafts or burn out bearings. And don't overlook the high salvage value of leather belts.

By all means—*Get this Book*—It is *free* to Engineers and Plant Executives

All new material never before published, and available only in our new book—"A Non-Technical Summary of Research on the Applications of Leather Belting." It was prepared by Mr. R. F. Jones, Research Engineer of the Leather Belting Exchange Foundation. Among the important matters covered are pulley diameters, pulley ratios, center distances, the effects of high belt speeds, gravity idlers, and it presents new rating curves for leather belting. Write for your copy today—you will find it valuable.

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DRYER FELTS

BRANDON 3-PLY "TRI-UMPH" AND STANDARD WARP

Deckle Tape and Cutter Webbing—Cotton and Rubber Belting—Enamelled, or Rubber, Fourdrinier Aprons—Rubber Splicing Tissue—Neutral Soap Powder—Dryer Felt Sewing Twine —Superheat Asbestos Packing—Rubber Sheet Packing—Steam and Water Hose

Pickles' Patent Automatic Steam Regulator

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Paper Making Machines

Which absolutely control the drying of the sheet. Installed on sixty days' trial.

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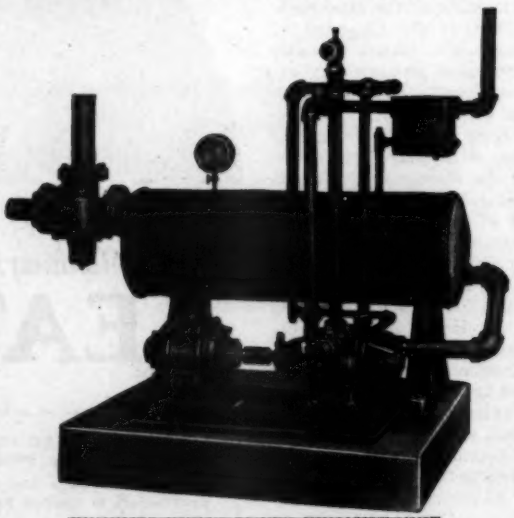

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Bird Inward Flow Rotary Screen
Bird Pulp Screen (New)
Bird Save-All—Water Filter—Thickener
Vickery Felt Conditioner
Vickery Doctor
Pulmax Drive
Walpole Screen
Shower Pipe
Bird Beater Attachment

LORENTZEN & WETTRE LINING :: HARLAND ELECTRIC DRIVE :: ARMSTRONG STEAM TRAP

For full particulars consult with

1524 Republic Building **THOMAS H. SAVERY, Jr.** Chicago, Illinois

ers and three "Type E" stokers, product of the Combustion Engineering Corporation. Provision will be made so that the exhaust steam can be used efficiently for drying purposes.

The stockholders by unanimous vote approved the plan submitted to change the present no par stock to $10 par stock. As result 400,000 shares of $10 par stock will be issued and exchanged on the basis of one share of $10 par stock for four shares of the present no par stock. The 400,000 shares approved will be sufficient to take care of the outstanding no par issue. This move will not in any way affect the 6 per cent preferred stock now held to the extent of $2,300,000.

It was shown that during the last year Allied Paper Mills has lost two directors by death. They are George E. Bardeen, one of the best known papermakers in the United States and one of the greatest factors in the development of the industry in Kalamazoo valley, and E. S. Rankin, capitalist and during his lifetime head of the Rankin Insurance agency. No attempt was made to fill the vacancies and as a result the board is automatically reduced to 17 members as follows: A. B. Connable, George S. Davis, C. A. Dewing, J. H. Dewing, George H. Gerpheide, A. G. Gilman, A. E. Kettle, W. E. Kidder, S. B. Monroe, John A. Pyle, G. W. Ritchie, H. L. Vanderhorst, George D. Cobb, Kalamazoo; J. W. Thompson, Detroit; E. B. Read, Richland; Florence G. Bardeen, Otsego; A. L. Pratt, Paris, France.

All officers were re-elected: President A. G. Gilman; first vice-president, George H. Gerpheide, second vice-president, John A. Pyle; secretary, George S. Davis; treasurer, S. B. Monroe.

W. A. Hodge Named Director of Mill

Winship A. Hodge, secretary and general manager of the Western Board and Paper Co., Kalamazoo, was added to the directorate of that corporation at the annual meeting Thursday afternoon, January 8th, in the company's offices. This increases the board from five to six, the other members being F. M. Hodge, A. E. Curtenius, W. H. Scott, Michael Redmond, and Charles G. Bard. At the same time Mr. Curtenius was re-elected president of the concern, W. H. Scott, vice-president; Michael Redmond, treasurer and Winship A. Hodge, secretary. During the last twelve months, this plant has been able to increase its average daily output by 40 per cent and is now making improvements and installing equipment that will still further augment production.

Standard Paper Company to Expand

The erection of a stock house with a capacity of 5,000 tons was authorized at the annual meeting of the Standard Paper Company Monday afternoon, January 19. This structure will be entirely of steel. The frame and trusses will be of structural steel, with sidewalls of corrugated steel. The cost will be approximately $90,000.

The building will be 120 by 140 feet in dimensions and of a single story, 50 feet high from the floor to the roof trusses. Heavy crane and a monorail track will handle the heavy bales of stock. In addition there will be included in the equipment a giant breaker beater, with 100 tons daily capacity. There will also be stock chests and pumps making it possible to deliver the stock direct to the beaters in both No. 1 and No. 2 mills. This equipment will tend to simplify manufacturing processes, and at the same time will eliminate considerable equipment now in use. Billingham and Cobb, architects and engineers, are preparing plans and specifications for the building and equipment.

In the election of directors, one change was made. John A. Wheeler, at his own request, was retired, his place on the board being taken by W. J. Lawrence, vice-president and general manager of the Western Paper Makers Chemical Company. The other directors are: B. C. Dickinson, James H. Dewing, A. L. Clark, John F. Byrne, E. A. Dunwell, H. S. Humphrey, and Clare H. Stearns. B. C. Dickinson was re-elected president with James T. Dewing, vice-president, A. L. Clark, secretary-treasurer, and John F. Byrne, general manager.

Four fire companies answered an alarm to the Milham Division of the Bryant Paper Company on January 21st when a small blaze started in the beater room. The flames, origi-

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"Excelsior" Felts

For EVERY GRADE of PULP & PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made *the first endless paper machine felts manufactured in America.*

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

KNOX WOOLEN COMPANY
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Sold by
BULKLEY, DUNTON & COMPANY
75-77 Duane Street, N. Y.
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A Good Couch Roll Is a Big Help in the Mill

We make the "Hoffman"—None better

Here's a Couch Roll on the market many years, and no less popular than when we first introduced it to the trade. It makes paper of better quality. Always soft and in good condition. Felt is easily, quickly, inexpensively replaced when necessary. Those mills using them will find it will help if they reverse the roll and use COLD WATER only when cleaning same.

The Moore & White Co.
Established 1885
North Philadelphia Station, Penna. R. R.
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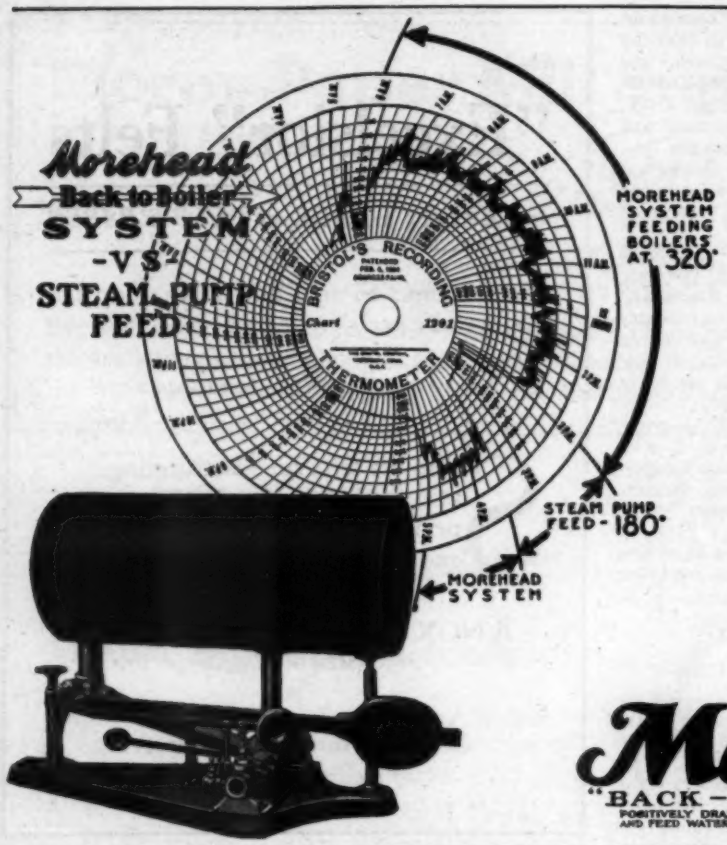
New England Representative: Gilbert H. Gleason, Nottingham Bldg., Boston, Mass.



Time after time the Morehead Back-to-Boiler System has demonstrated its superiority for boiler feeding purposes.

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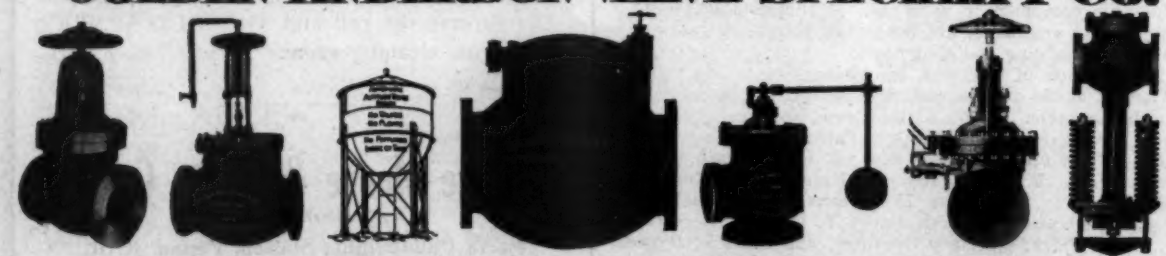
"BACK-TO-BOILER-SYSTEM"
POSITIVELY DRAINS ALL TYPES OF STEAM APPARATUS. DELIVERS CONDENSATION AND FEED WATER TO BOILERS UNDER ALL CONDITIONS AT MAXIMUM TEMPERATURE

RESILIENT RUBBER ROLLS

That are snappy but not soft
Are the kind to use for paper machines

Made By
STOWE & WOODWARD COMPANY
The Rubber Roll Makers NEWTON UPPER FALLS, MASS.

GOLDEN-ANDERSON VALVE SPECIALTY CO.



AUTOMATIC CUSHIONED STEAM AND WATER-SERVICE VALVES.
"We Challenge to Test for Merits Any Automatic Steam or Water-Service Valves in the World"
1240 FULTON BUILDING. PITTSBURGH, PA.

nating from a heater, were extinguished before any great amount of damage resulted.

Kalamazoo Paper Co. to Add Big Machine

The Kalamazoo Paper Co. during the next 12 months will expend approximately $1,000,000 in improvements that will increase the daily capacity of this concern to over 200 tons, making it one of the largest mills in America devoted to manufacture of book papers.

The initial step in the proposed expansion was taken Thursday afternoon, January 8th, when President F. M. Hodge signed the contract for the purchase of a 168-inch Rice, Barton and Fales Fourdrinier Machine, with a daily capacity of 50 tons of the better grades of paper. When installed this machine will be the largest in the Kalamazoo River valley district, having an aggregate width of four inches greater than any machine now in use in the district.

Installation of the machine will be in the Riverview division. When originally erected the machine room in that mill was built to accommodate two machines. The first installation made was a 146-inch Pusey and Jones Fourdrinier. That has been in successful operation for several years. The contemplated addition will give the Kalamazoo Paper Co. six paper machines in all, besides their mammoth coating mills.

Mr. Hodge reports that the purchase of the latest unit will carry with it a large increase in the beater and washer capacity, a large addition to the boilers and an immense turbine unit, and also addition to the present storage capacity. None of the auxiliary equipment has been purchased, but orders are to be placed immediately. Plans are also under way for the new buildings required for the general enlargement.

Outside of being able to report that business during 1924 has been steady and satisfactory and that the outlook for the future is even more promising, the annual meeting of the stockholders of the Kalamazoo Paper Co. was featureless. The present board of directors was re-elected: F. M. Hodge, A. E. Curtenius, C. S. Campbell, A. B. Connable, D. R. Curtenius, W. S. Dwing, Hubbard Kleinstuck, Woodbury Ransom, E. C. Parsons, Kalamazoo and Daniel Altland, Detroit.

Officers were also continued at their respective posts as follows: F. M. Hodge, president; Daniel Altland, vice-president; secretary-treasurer, A. E. Curtenius.

The extensive expansion program planned for 1925 is to be carried forward as rapidly as possible.

Superintendents Meet January 15th

Production costs and numerous problems confronted in the operation of a paper mill were considered by R. H. Hayward, general manager of the Kalamazoo Vegetable Parchment Co., at the Thursday evening meeting of the Superintendents' Association and the Kalamazoo Division of Cost Association of the Paper Industry. Mr. Hayward advocated putting every department in a mill on a cost basis, charging each department for each service granted it, and selling their product to the next department. By setting each cost low enough so that each department was able to make a profit, this was given to them in dollars and cents at the end of each month. One example which he gave was in the machine room. Before this went into effect at the Parchment, a mill-wright was called to tighten a bolt, or take up a belt in this department. Now, that the mill-wright time is charged up to the department, the machine hands will do their own fixing as much as possible, and only in extreme cases will they call a mill-wright. This has made a decided saving in this department, and in all cases this has worked a very great increase in production, with a lowering of cost.

Mr. Hayward advocated this for all the mills in the valley, as a very great step forward in efficient management.

Kalamazoo Paper Employees Frolic

On January 17 the officers and employees of the Kalamazoo Paper Company held their annual winter picnic at the Masonic Temple. At this gathering 2,000 attended, as the affair was for the employees and their families. Dinner was served for 5:00 till 7:00 in the basement dining room. There were four acts of vaudeville, obtained from the Orpheum Circuit, Chicago.

Following the dinner announcements of the fair prize win-

Nipped in the Bud!

Whenever a wrinkle occurs in a Fourdrinier Wire, its usefulness is over.

The wire may still be good as new in every other respect; nevertheless, it must be replaced, as even one wrinkle would spoil the paper.

Weaving a Fourdrinier Wire that will run straight and true; that will not sag; that will not wrinkle; is a painstaking, exacting process which has been studied for a half century by The W. S. Tyler Company.

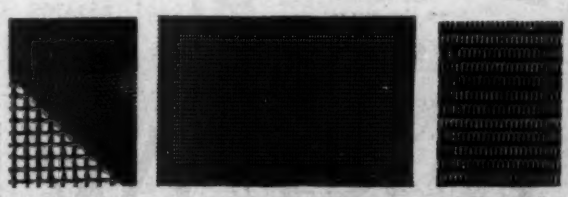
Tyler Fourdrinier Wires are woven on looms especially designed and built in the shops of The W. S. Tyler Company; the wire from which they are woven is drawn through diamond dies in the Company's wire-drawing department; the metal rods from which the wire is drawn are of a special formula; and, finally, the weavers are men who have devoted their lives to the work of producing a firm, uniform Fourdrinier Wire.

Tyler Fourdrinier Wires are woven in all widths up to and including 250". Samples will be mailed upon request.

THE W. S. TYLER COMPANY, *Cleveland, O.*

TYLER

FOURDRINIER WIRES



Backing Wire — Tyler Fourdrinier Wires — Corduroy Cloth

CYLINDER WIRES BACKING WIRES
WASHER WIRES CORDUROY WIRE CLOTH

Build on Quality

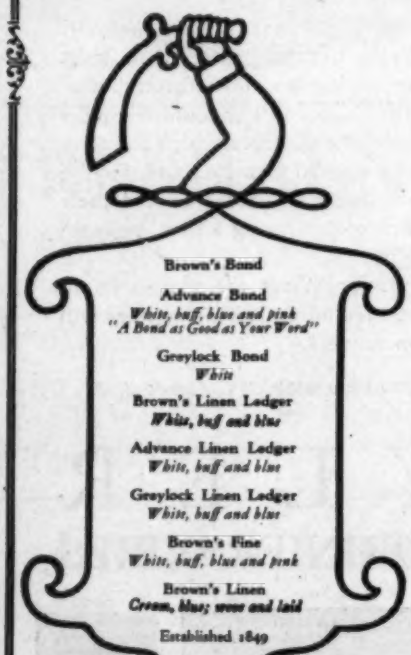
IN making paper, quality is the recognized foundation of enduring strength and permanence.

And in marketing paper, this factor is an equally essential basis of permanent success.

Just as true quality always means greater lasting properties in paper, so in marketing paper it usually means more dependable, enduring trade.

For 76 years, the L. L. Brown mills have specialized in making ledgers, linens and bonds of the highest quality and value. During this three-quarters of a century, L. L. Brown papers have been the acknowledged standard in their respective grades.

Business built on L. L. Brown quality has a time-proven foundation of permanence.



Special orders requiring ledger, linen or bond paper of the highest quality receive careful and prompt attention

L. L. BROWN PAPER CO.

Established in 1849

ADAMS, BERKSHIRE COUNTY, MASSACHUSETTS

L. L. BROWN'S Ledgers, Linens and Bonds

ners were made. The company offered $100 in prizes for exhibits made at a fair held last fall, under the direction of Mrs. Maude Young, who is in charge of the welfare department. Special games and stories was arranged for the smaller children.

John Spoor Made Assistant Superintendent

John Spoor, familiar known in the valley as Jack, and for the last three years night superintendent at the Monarch Division of the Allied Mills, has been promoted to the position of assistant superintendent in the book divison of the Monarch. Joe Dennany, machine tender at the Monarch division will take Mr. Spoor's place as Night Superintendent, and Claus Johnson, a back tender, will take Joe Denany's place as machine tender.

These changes are still in harmony with the Allied policy of promoting the oldest employee to the positions of responsibility above them. One of the peculiar things in this connection is that a fourth hand has been promoted to third hand, a third hand to back tender, and back tender to machine tender, and machine tender to night boss, and a night boss to assistant superintendent.

In the last six years, the Monarch has hired only one machine tender, having set up back tenders whenever a change has occurred.

Bryant's Forman Clubs Holds Meeting

Richard W. Milham was elected president of the Foreman's Club of the Bryant Paper Co. at the meeting held Wednesday night, January 21st. Chris Schrier was elected vice-president and Harry Hines secretary. The banquet and meeting held by the club was attended by 200. Peter C. Servass officiated as toastmaster and several talks were given.

Among the speakers were Felix Pagenstecher, president and general manager of the company, Alfred Bryant and E. H. Gilman, superintendents, and Edward C. Rutz, superintendent of power and maintenance.

Edward C. Rutz, superintendent of power and maintenance of the Bryant Paper Co., spoke to the Kalamazoo Buyers Club on January 22nd on "Steam Economy." Mr Rutz is one of the best informed men in the power end of the paper industry in the valley. He advocated the central power plant at the Bryant Paper Co. which has saved the company a very considerable amount on their fuel and help bill.

The Folding Box Manufacturers Association will hold its annual meeting Feb. 9, 10 and 11 at the Maryland Country Club, Baltimore Md. Notices of the gathering are now being sent out by John F. Byrne, manager of the Standard Paper Co., and president of the national organization of folding box makers.

Mr. and Mrs. F. M. Hodge, left February 3rd for a Mediterranean trip. Mr. F. M. Hodge is president and general manager of the Kalamazoo Paper Company.

New Printing Ink Establishment

The Monroe Printing Ink Co. will open a branch factory in Kalamazoo under the management of J. Robert Upjohn and plans to be operating in a short time. The plant in Fulford street, formerly occupied by the Kelly Well Company, has been leased on an option basis and is now being equipped with modern ink making machinery. This building was located through the efforts of the Chamber of Commerce, and is well adapted to the needs of the new occupants.

Mr. Upjohn, returning to his Kalamazoo Home, will bring with him a corps of experienced ink chemists, color men, and varnish makers. The main plant at Monroe will be operated as in the past, having built up a splendid line of business.

A. B. Connable, a director of the Kalamazoo Paper Co.; S. B. Monroe, treasurer of the Allied Mills and Hawthorne Paper Co., and B. C. Dickenson, president of the Standard Paper Co., were named directors of the Kalamazoo Sled Co. at the annual meeting of the stockholders held Thursday, January 15.

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EXCLUSIVE MAKERS OF

Paper Makers' Felts

Have You Run Them?
If Not, Why Not?

Are You Interested
in
Accurate Running
Felts?

Give Us a Trial
Get Authentic Information
Ask the Men Who Run Them

Yours for service

LOCKPORT FELT CO., Newfane, N. Y.

The survival of the fittest

The easiest way to survive competition is to reduce the cost of production.

Our equipment will help you to do this:

Jenssen Acid Towers
Jenssen Spray Coolers
Bullard Gas Washer
Decker Cooking Process
Kamyr Feltless Wet Machine

G. D. Jenssen Co.
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RUST CAN'T GET A FOOTHOLD

RUST hasn't a chance on equipment, buildings and other steel surfaces that are painted with BITUMASTIC SOLUTION. This specially made protective paint finds and fills every microscopic pin hole, presenting a hard, brilliant coating that seals the surface against attacking elements. It not only defies rust but also withstands weather conditions, moisture, chemical fumes and high temperatures.

BITUMASTIC SOLUTION has and retains for a long period a lustrous finish which adds to the appearance of plant and equipment. When you apply BITUMASTIC SOLUTION you get protection, durability, economy and fine finish which are demanded in the modern paper mill.

A test will convince you. Write for Sample Can

SINCE **BITUMASTIC** 1854

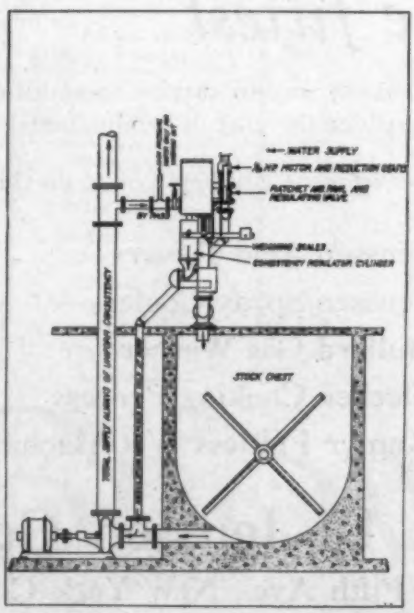
WAILES DOVE-HERMISTON CORPORATION

17 BATTERY PLACE, NEW YORK

322 S. Delaware Ave., Philadelphia — Union Trust Building, Cleveland

The Trimbey Automatic Consistency Regulator

(Patented)



Not only the FIRST but the ONLY device on the market which will control the Consistency of Paper Stock as it is being pumped.

Acts as a continuous Sampler and by adding water at the pump controls the entire volume being handled.

345 of these machines are now in use in the United States, Canada, Newfoundland and in seven Foreign Countries.

Made by

Trimbey Machine Works

Glens Falls — **New York**

(Also "Made in Canada")

Ohio News

February 2, 1925.

February Program Announced

R. S. Kellogg, secretary of the Newsprint Service Bureau, secretary of the Joint Committee on Vocational Education, and chairman of the National Forestry Committee, will be the speaker at the regular meeting, February 28, of the Miami Valley Division of the American Pulp and Paper Mill Superintendents, at Middletown.

This appearance will be his final one in the series of three in this vicinity. At West Carrollton, Feb. 26, the paper mill superintendents there will entertain at dinner the foremen and superintendents of local plants, Dayton and Miamisburg mills, with Mr. Kellogg as speaker of the evening.

At Hamilton, the next evening, the foremen's club of that city will hear Mr. Kellogg at the regular meeting at the Y. M. C. A. On Saturday, the foremen's club of Middletown will meet with the superintendents' organization to hear Mr. Kellogg's address.

These arrangements were completed by the superintendents' program committee composed of Homer Ferguson, Hamilton; B. F. Bishop, Middletown; and F. C. Cole, Lockland, with the coöperation of R. W. Jenkins, Hamilton, of the Extension Department, Ohio State University.

Mr. Jenkins in his work of industrial education for Ohio state has been conducting a program of instruction for paper mill foremen and employees of the valley. He is chairman of the Educational Committee appointed by the American Pulp and Paper Mill Superintendents' Association.

Surveying for Recommendations on Apprentice Training

Mr. Jenkins of the Extension Department, Ohio State University, meets weekly with groups of foremen in Middletown, Hamilton, Cedarville and West Carrolton, giving a series of lectures and conducting discussions on the subject of Industrial Economics, based on the paper industry, and leading classes in foreman training.

Classes have been started among the employees of the mills for the study of the five volumes on paper making put out by the Technical Association of the Pulp and Paper Industry, with the aim of having these classes meet at regular periods and discuss problems that have come up in their study of these books, with a local teacher.

Mr. Jenkins, with other members of the Educational Committee of the Superintendents Association, is at present conducting a survey among a number of mills for the purpose of arriving at recommendations to be placed before the convention of the Superintendents Association at Niagara Falls. They are seeking the opinion of mill executives on the following questions:

What kind of organization should control apprentice training in the pulp and paper industry?

How is the training to be supervised?

What is to be included in the apprentice course?

How shall the instructor be secured?

What must be his qualifications?

Do you favor courses for the older paper makers, based on the texts developed by the TAPPI?

What method of instruction would you suggest to use in giving these courses—correspondence, class study, or both?

The members of the Educational Committee appointed by the American Pulp and Paper Mill Superintendents Association are as follows: R. H. Laftman, manager, Bogalusa Paper Company, Bogalusa, La.; Fred Cranhold, general supt., Kimberly Clark Paper Company, Appleton, Wis.; G. P. Hambrecht, director State Board of Vocational Education, Madison, Wis.; Joseph H. Slater, manager, Escanaba Paper Company, Escanaba, Mich.; Alfred E. Bryant, general superintendent, Bryant Paper Company, Kalamazoo, Mich.; C. A. Brautlecht, Orono, Me., head of Chemistry, Pulp and Paper in the University of Maine; and R. W. Jenkins, Ohio State University, chairman.

C. H. Randolph, superintendent of the Advance Bag Co., of Middletown, resigned his position after twenty years of service, his resignation becoming effective February 1. Mr. Ran-

GURNEY
BALL BEARINGS

for
Greater Capacity

COMPARE Gurney Ball Bearings—Maximum Service—Maximum Capacity type—with like sizes of other bearings. Note the greater number of maximum size balls per bearing. The race curvature is such that they have increased areas of contact.

These are the secrets of their ability to safely carry greater loads than other bearings of equal size. This is done without affecting the life of the bearing or its efficiency.

Gurney load capacity ratings are considerably higher than are the ratings for bearings of other types—and you will find Gurneys performing unfailingly in any number of machines where this additional capacity is essential to the successful performance of the machines.

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BALL BEARINGS

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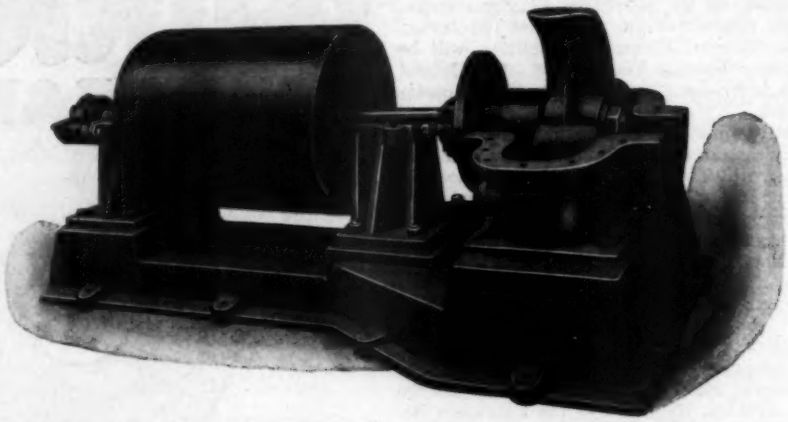
Marlin-Rockwell Corp.
successor to
GURNEY BALL BEARING CO.
JAMESTOWN, N. Y.

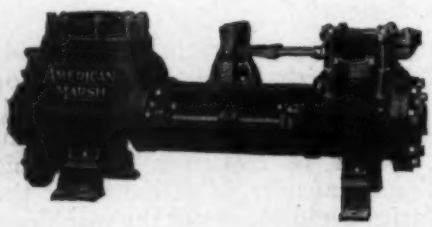


for handling STRINGY Stock, Cross Pumps are efficient and dependable

E. M. CROSS MACHINE CO., Berlin, N. H.

AMERICAN-MARSH PUMPS

SIMPLEX—DUPLEX—CENTRIFUGAL

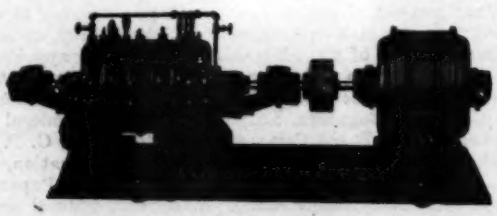


ALL American-Marsh Pumps, whatever the type, are heavily constructed with the best of material and workmanship. They are the result of over 35 years' experience in the building of high grade pumping machinery. Every pump is given a thorough test under actual working conditions before shipment.

There are over 165,000 in successful operation.

The line includes:

Boiler Feed Pumps
Suction Box Pumps
Wet and Dry Vacuum Pumps
Air Compressors
Bilge Pumps
Condensation Pumps
Centrifugal Pumps
Paper Stock Pumps



Write for bulletin covering type in which you are interested

AMERICAN STEAM PUMP COMPANY

BATTLE CREEK, MICH.

dolph has not announced his plans, but it is expected that he will accept a position with another company.

Smith Mill Begins Operations

The morning of January 13, at nine o'clock the first wheel was turned in the Frank Smith Paper Mill in Middletown, Ohio, after a construction of nineteen months. The new mill is modern in every respect and electrically equipped throughout. The cost of the city's fourteenth paper mill approximated $2,000,000.

The first day, machines were tested and proved satisfactory before a gallery of officials from other paper mill units of the town. Such progressive ideas have been incorporated in the planning and construction of the new building that is considered without a peer in this country and has few equals on the continent.

In the entire mill, there is a floor space of 150,000 square feet, with a machine room 350 feet long. The lighting system is composed of a series of skylights to provide natural light during the day while hundreds of incandescent lights, diffused by a specially prepared finish on the walls and ceiling shed a day-bright light at night. There is a compactness about the massive machinery, that a man standing at one end of the many connected shafts can apply strength with one hand and move the shaft 150 feet distant.

A unique method of bleaching never before used commercially although thoroughly tested in the laboratories will be used in the Smith manufacture. The paper machine is controlled entirely by push buttons. There are no levers for starting any of the seven units. Each of these units may be run separately.

Power for the machine is supplied by 1000 kilowatt motors. The only steam used in the new manufacturing plant will be carried from the Oglesby mill, situated near by and used in the dryers which are a combination roller and ball bearing type.

The beaters are Horne Patent Engines, installed according to the Bendix drive arrangement. These with stuff chests and bleaching chests have been planned to decrease friction, by putting tile lining in the chests. Tile lined save-alls beneath the machine will enable the paper makers to keep the water clean and use it over and over in manufacture.

The mill has been built on a spot which seven years ago was unreclaimed land where the slightest rise in the waters of the Miami river would flood the entire district. After reclaiming the land by levies and a draining system, the new mill was built to commemorate the economy of its builders.

Officers of the mill include J. A. Aull, president; A. Frank Smith, vice-president; L. C. Anderson, vice-president, M. T. Hartley, secretary; H. C. Johnson, treasurer; C. E. Tull, assistant secretary-treasurer.

Superintendents at January Meeting

The Miami Valley Division of the American Pulp and Paper Mill Superintendents association held their regular monthly dinner meeting at the Miami Hotel, Dayton, Saturday evening, Jan. 10.

R. B. Adams, technical superintendent of the Stowe and Woodward Company of Upper Newton Falls, Massachusetts, addressed the gathering on "Rubber Covered Rolls Their Manufacture and Application to Paper Machines."

W. H. Scott of the Duriron Company of Dayton followed, discussing "Used Dissolved Alum in Beaters." This talk was illustrated with lantern slides. With the announcement that the next meeting will be held in Middletown on the last Saturday in February, the program committee was appointed, consisting of H. C. Ferguson, B. M. Bishop, and F. C. Cole.

Improvement at Gardner-Harvey

An improvement to facilitate loading trucks at the Gardner-Harvey mill on Central avenue is the result of favorable vote by the City Commission of Middletown. The company's parking space has been extended 25 feet and the sidewalk has been raised to elevate the trucks to the loading platform.

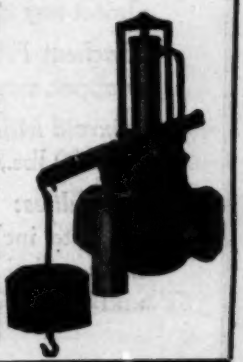
A Christmas party that has become a custom of the Raymond Bag Co., of Middletown, was a festivity of the holiday

Clearing up a fault in any system

NO MATTER what system your mill uses, the Davis Regulator can probably pile up a big annual saving in steam costs for you. It cuts down unnecessarily high pressures and pressures that occasionally go beyond your system's actual requirement, reducing them to the economical level where they belong.

The free catalog belongs on your shelf. Ask for it, addressing the G. M. Davis Regulator Co. at 414 Milwaukee Ave., Chicago.

Balanced valves
Float valves
Fluid control valves
Back pressure valves
Exhaust relief valves
Water relief valves
Stop and check valves
Steam traps
Pump governors
Emergency stop valves
Flow regulators
Non-return valves



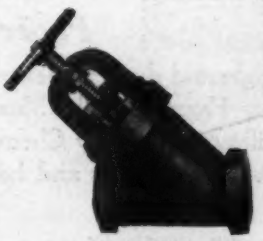
1875--Valve Builders for Fifty Years--1925

DAVIS VALVE SPECIALTIES
STEAM SAVERS SINCE 1875

P12-F-BTC

Made for maximum service [illegible]

TRADE JENKINS MARK
Jenkins Bros



Sectional view, Fig. 296, screwed. Standard Iron Body Y or Blow Off Valve.

On lines carrying thick fluids

The Jenkins Y or Blow-Off Valve is well suited for controlling the flow of thick fluids in paper mills. Its design affords a wide open passage; its Jenkins composition disc assures perfectly tight contact with the seat when the valve is closed.

When open, this valve permits a flow practically in line with the pipe.

Jenkins Valves for practically all requirements. At supply houses everywhere.

JENKINS BROS.
80 White St.....New York, N. Y.
524 Atlantic Av.....Boston, Mass.
133 No. Seventh St..Philadelphia, Pa.
646 Washington Boul.....Chicago, Ill.

JENKINS BROS., LIMITED
Montreal, Canada London, England

Always marked with the "Diamond"
Jenkins Valves
SINCE 1864

IN a business so diversified, it is always difficult to keep the range of our work and products before the Trade. With operations beginning with lumbering, and ending with such refinements as embossing and color-printing, small wonder that sometimes our oldest friends go elsewhere for goods they would be only too glad to buy from us. Below you will find brief reminders of the more important Union Lines:

Paper

"Drum Head Kraft" Wrapping Paper, 25-80 lbs., basis. On special order, Drum Head Kraft can be furnished in striped form or with individual surface-marking and in almost any color.

"Sachem Fibre," 25 lbs., and 30 lbs., basis only; a natural dry-finish, all Sulphite wrapper, popular in many trades.

"Oxroid Mill Wrapper": A heavy Screenings sheet that is not excelled anywhere; 150-300 lbs., basis; natural color or surface-stained one or both sides.

Specialties: Various special papers can be furnished upon request, in both Kraft and Sulphite, including a line of Bleached Sulphite Papers, in White and Colors, 25-80 lbs., basis. Notion Envelope, Black and Gasket Papers; Papers for Waterproofing, Waxing and Twisting; etc.; etc.

Paper Bags

Grocers' Bags, including the well-known Animal Line of "Not-A-Seam" Automatics. Carton-Liner, Candy, Notion, Bread, Sandwich, Pastry, Cake, Doughnut, Glassine, Potato Chips, Peanut, Bacon & Lard-Liner, Nail, Sugar, Banana, Millinery, Shirt, Shirtwaist; Handle, Garment, and Cigar & Tobacco Bags; *The* UNION DUPLEX COFFEE BAGS; *The* UNION SHOPPING BAG. Widest facilities for the designing and manufacture of Special (made-to-order) Paper Bags, and two of the most complete printing-plants in the industry.

Paper Sacks

A variety of both single and duplex Sacks—fancy and coarse, regular stock or special work—for containing Flour, Cereals, Meals, Feeds, Coal, Charcoal, Kindling Wood, Garden Truck, Fertilizer, Lime, dry Chemical Products, etc., etc. Complete facilities for designing effective trade-marks and label-forms and for printing of the same in large volumes.

The value of a paper bag is measured by
the service it renders—not by its COST

UNION BAG & PAPER CORPORATION

Manufacturers of Pulp, Wrapping Paper, Paper Bags & Paper Sacks

GENERAL OFFICES ▪ WOOLWORTH BUILDING ▪ NEW YORK CITY

season of 1924. A large Christmas tree was set upon the fourth floor of the plant and decorated with hundreds of tiny lights. The 400 employees exchanged gifts given out by Santa Claus. A committee composed of employees engineered the affair to a successful conclusion.

Office Building Being Built

The closing of 1924 was marked at Hamilton, Ohio, by simple but impressive ceremonies marking the corner stone laying at the Champion Coated Paper Company's new office building, now under construction on North B street.

The ceremonies were attended by the office employees of the Champion company and a number of guests. Peter G. Thomson, president of the company, gave a short talk in which he expressed the hope that the new office building will stand for 100 years and that in that time the company will continue to prosper.

At the close of his talk a small copper box, containing a picture of the president of the company and a sealed letter that he had written was placed in the stone and Mr. Thomson placed the first mortar sealing the enclosure. The contents of the letter is unknown.

Alvan T. Simonds Economic Prizes for 1925

To encourage the study of economics two prizes of $1,000 and $500 are offered by Alvan T. Simonds, President of the Simonds Saw and Steel Company of Fitchburg, Mass., for the best two essays on the following subject: "Your prosperity and Mine."

The contest is open to all residents of the United States and Canada. It is hoped that it will especially appeal to business executives, assistants to business executives and students of business and commerce.

Contestants, who are not well versed in economics, are advised to study elementary works, dealing with fundamentals, and to read articles on economic subjects in newspapers and magazines. The essays may be entirely original or may be based, in whole or in part, on books or articles. If the latter plan is followed, references to the books and articles should be given in footnotes.

The essays must be at least 2,500 words in length and should not exceed 3,500 words. They must be typewritten and on one side of the paper only.

The prize winning essays, upon payment of the prizes, will become the property of Alvan T. Simonds.

The judges will be announced later. They will be selected from experts in economics, business, and related activities. Their decision must be accepted by all concerned as final.

The essays must reach the Contest Editor, Simonds Saw and Steel Company, 470 Main street, Fitchburg, Mass., on or before December 31, 1925.

New Catalogs, Booklets, Etc.

Kindly mention THE PAPER INDUSTRY when writing for these booklets.

GARDCO PAINT PRODUCTS CO., 53 W. Jackson Blvd., Chicago.—The first number of a four-page house organ called "The Solution," published in the interests of Gardco Paint—snappy and interesting.

CAMERON MACHINE CO., 61 Poplar St., Brooklyn, N. Y.—"The Buying of Paper Mill Machinery" is a pamphlet which covers in a concise way the various methods of slitting and winding rolls of paper and board which are available, and is chockfull of information for the buyer of paper mill machinery.

WESTINGHOUSE ELECTRIC & MANUFACTURING CO., East Pittsburgh, Pa.—Special publication No. 1717, entitled, The Engineering Achievements of the Westinghouse Electric Co. during 1924, is what the title implies, a record of many of the major achievements of Westinghouse engineers during the year.

W. A. JONES FOUNDRY & MACHINERY CO., 4401 W. Roosevelt Road, Chicago.—Their new General Catalog is ready for distribution. It covers the entire "Jones" line of power transmission machinery showing prices, dimensions, weights, horsepowers and various other specifications for

Come to Cutting Tool Headquarters for

CIRCULAR SAWS

The Steel, Temper and Tension are essentials which go to make Simonds Circular Saw edge-holding quality.

If you require Saws of any kind or Knives for paper or pulp mills, get the best—that's Simonds.

SIMONDS SAW AND STEEL CO.

Fitchburg, Mass. Chicago, Ill.

A Layer That You Will Want to Own

Not a hen, but a Lay Boy that sure can pile the paper

"Moore & White" Lay Boys lay the paper faster and more accurately than human operators, at a great deal less cost. Since first introduced to the trade, they have met with great success, repeat orders coming in right along in large numbers. They have been a real boon to the paper industry. Single, duplex and diagonal types.

The Moore & White Co.

Established 1885

North Philadelphia Station, Penna. R. R.

Philadelphia, U. S. A.

Canadian Builders: Dominion Engineering Works, Ltd., Montreal, P. Q., Canada

New England Representative: Gilbert H. Gleason, Nottingham Bldg., Boston, Mass.

BE READY FOR THAT PIPING JOB

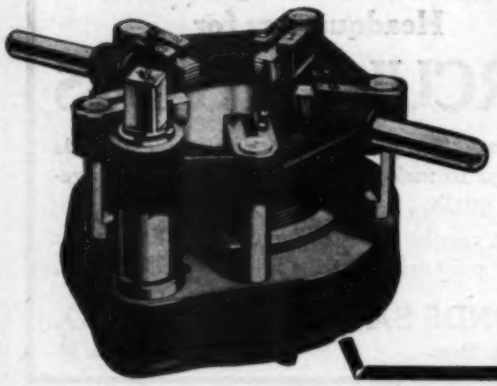
When the emergency job arises or there is a change to be made in the piping, be prepared to handle the work easily and quickly.

You can do it with "Toledo" threading and cutting tools, and you will be surprised at the ease and speed with which the work can be accomplished.

"TOLEDO" No. 1A
Threads 1" to 2"
List Price $30.00

"TOLEDO"

"TOLEDO" No. 2
Threads 2½" to 4"
List Price $100.00



"Toledo" pipe threading and cutting equipment is the last word in pipe tools. They are portable, easy to operate, one-man tools that will reach the most inaccessible piping jobs.

They will quickly prove their worth about the paper mill.

A post card will bring you our complete catalog.

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A. B. JARDINE & CO. HESPLER, ONT.

PUMP VALUE
is on the inside

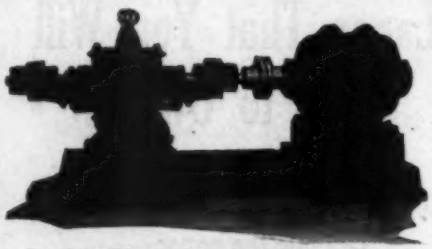


Fig. 510. Taber Double Suction Centrifugal Pump

Fig. 192. Taber Single Suction Centrifugal Pump

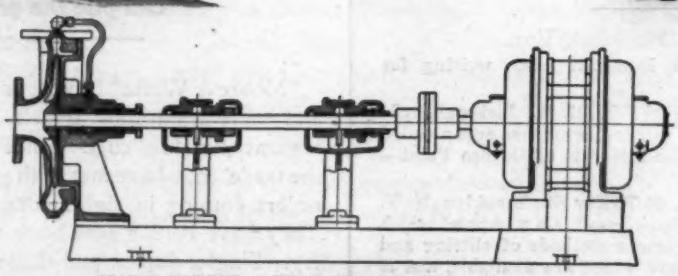


Fig 301. Taber "R" Type Rotary Belt Driven Pump

ILLUSTRATION 88237 shows motor driven open impeller type pump used for circulating bleach liquor. This pump has extra deep stuffing box.

Send for Bulletins 20 and 30 and data sheets for submitting your pumping problems to us.

Fig 314. Taber Motor Driven Rotary Pump

TABER PUMP CO. *Pump Specialists* Buffalo, N. Y.

spur gear speed reducers, enclosed worm gear drives, friction clutches, gears, pulleys, etc.

GRAVER CORPORATION, East Chicago, Ind.—"Pressure Type Water Filters" is the subject of Bulletin 501, which describes filtration methods and shows the construction of Graver filters. Complete tables of sizes and capacities are given.

New York City News

February 2, 1925.

Wall Paper Manufacturers Meet

The Wall Paper Manufacturers' Association of the United States held its annual meeting at the Commodore Hotel in New York on January 16, at which it launched the third year of its national advertising campaign, with a budget of $150,000. One of the chief aims of the campaign, it was stated, is to stabilize the industry by urging the public to have decorating done outside the rush spring and fall seasons. Through advertising the association will show the benefits resulting from decorating in "off seasons," Henry Burn, president, declared. "It will make the public think, and is certain, if properly presented and supported over a period of time, to overcome one of the greatest and most costly weaknesses which our industry faces—seasonal decorating," Mr. Burn said.

The volume of wall paper sales in 1924 was about 15 per cent above that in 1923, it was brought out at the meeting. The prospects for this year are regarded as very favorable.

Rudolph Co. Files Schedules

The Rudolph Paper Company, jobbers, of 1350 Lafayette avenue, New York, filed schedules in bankruptcy on January 23 showing liabilities of $189,793 and assets of $237,488, main items being machinery and fixtures, $86,819; stock, $75,000; accounts, $50,716, and cash, $12,404.

Among the principal creditors of the firm are the International Paper Company, $18,539; Kalamazoo Vegetable Parchment Company, $6,375; Moore & Munger, $29,222; Crystal Tissue Mills, $7,940; Holden Paper Company, $3,130; American Writing Paper Company, $3,132; Ajax Paper Mills, $3,216; West Milton Paper Mills, $3,375; Erving Paper Mills, $17,601, and the Standard Oil Company, $3,136.

Arthur C. Hastings, accompanied by Mrs. Hastings and their youngest son, Morris, left New York on January 14 on a trip around the world on the steamer Empress of France. Mr. Hastings, who is a former president of the American Paper and Pulp Association and a figure long prominent in the paper industry, will be abroad until late in May. He has practically retired from active business, having severed his connection with H. G. Craig & Co., paper merchants of this city, prior to leaving on his world tour.

The United Paperboard Company, Inc., with main offices at 171 Madison avenue, New York, reports earnings for the six months ended November 29, 1924, of $241,148 after all expenses and taxes, but before allowing for depreciation, compared with net earnings of $357,570 in the same period of 1923. The balance sheet as of November 29 last shows net current assets of $1,931,314, against current liabilities of $325,304.

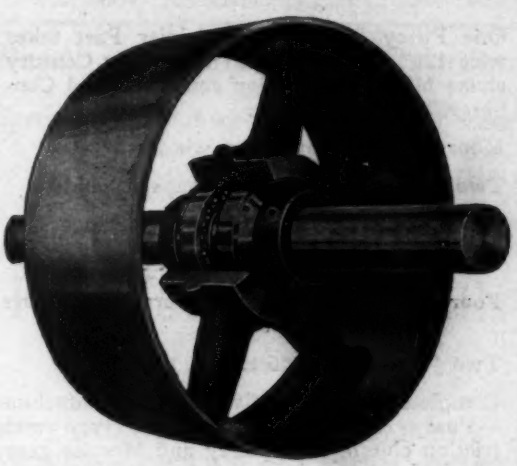
Coy, Hunt & Co. Move

Coy, Hunt & Co., one of the largest and oldest paper jobbing concerns in the metropolitan area, have moved from 292 Lafayette street to larger quarters in their own building at the corner of West Houston street and West Broadway, New York.

Increasing business made it necessary for the company to have larger quarters, and it will occupy the entire six-story and basement building at the new address. A feature of the new location is an inside loading platform where paper may be received and shipped from the building under cover.

Price & Pierce, Ltd., wood pulp agents, of 17 East Forty-second street, New York, have been appointed the sole selling

Ball Bearing Pulleys



LOOSE Pulleys operating at high speeds or located where it is difficult to lubricate, give satisfactory service if equipped with BALL BEARINGS.

Ball Bearing Loose Pulleys are self-oiling, because lubrication is necessary only two or three times a year.

Ball Bearing Loose Pulleys are also desirable and give excellent service on Mule Pulley Stands, Tighteners, Idlers and Machines, especially where speeds are high.

"Universal Giant" Friction Clutches and Cut-Off Couplings equipped with Ball Bearings are being furnished where service is severe and lubrication a problem. Like Ball Bearing Loose Pulleys, Clutches so equipped need attention only two or three times a year.

T. B. Wood's Sons Company

Chambersburg, Pa.

Manufacturers of Shafting, Couplings, Set Collars, Hangers, Pillow Blocks, Pulleys, Rope Sheaves, Friction Clutches, Belt Tighteners and Tension Carriages

Paper Machinery For Sale

One Pusey & Jones Fourdrinier Part takes wire 126" x 60' equipped with New Century shake Millspauch suction couch roll and Connersville vacuum pump.

Moore & White four drum winders.

Two 72" nine roll Holyoke super calenders.

Four 66" nine roll Holyoke super calenders.

One 48" nine roll Holyoke super calenders.

Four 60" Hamblet sheet cutters with Moore & White layboys.

Two Jones beaters 66 x 57.

Complete Marshall Drive for Paper Machine —Pusey & Jones self-contained type with friction clutch, cone pulley and Mortise gear.

By FRANK H. DAVIS CO.
175 Richdale Ave. Cambridge, Mass.

FOR SALE

Boiler Bargains

10—250 H. P. B. & W. (Batteries of 2 each) 180 lb. pressure, N. Y. State, $1200.00 each.
4—150 H. P. Dillon, 150 lb. pressure, Mass. Standard Code, used 1 year—$650.00 each on cars.

Incinerators

2—9 x 30 Manitowoc, practically new, complete with drives.

Barking Drums

1—9'6" x 48' Portland Barking Drum, complete with drives, gears, etc. BRAND NEW.
1—9½ x 30 American Barking Drum, BRAND NEW.

Technical Economist Corporation
40 Rector Street, New York, N. Y.
TELEPHONE: WHITEHALL 820 CABLE: HERENCO

WANTED—Chief Engineer for paper mill. Must have thorough working knowledge of steam, electric power and turbine machinery and capacity to handle equipment in 65-ton test liner mill. State age, nationality, education and complete experience of positions occupied and with whom by years. Give references and salary expected. Address Box 72, The Paper Industry.

BUSINESS OPPORTUNITY

Young man has developed much desired article for converters of Roll Stock. Business already established. Best of references furnished. Big profit possibilities. In order to put proposition across promptly and properly additional capital is required. Owner will sell one-half interest to right party. Splendid opportunity for right man. Address Box 71, The Paper Industry.

CRANES

OVERHEAD ELECTRIC

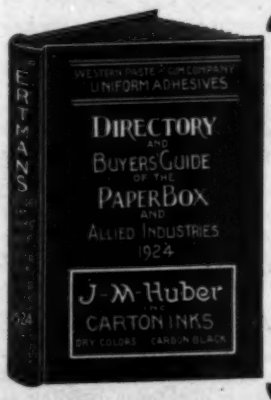
60 ft.	5 Ton Whiting	220 Volt D. C.
65 ft.	10 Ton Niles	220 Volt A. C.
70 ft.	15 Ton P. & H.	220 Volt D. C.
71 ft.	10 Ton Morgan	220 Volt D. C.
80 ft.	25 Ton P. & H.	220 Volt A. C.

LOCOMOTIVE

5 Ton 4 Wheel Brownhoist
10 Ton 4 Wheel Terry & Tench
10 Ton 8 Wheel Industrial
15 Ton 8 Wheel Brownhoist
20 Ton 8 Wheel McMyler

Boilers, Engines, Tanks, Industrial Equipment

F. WILLIAM STOCKER, HOBOKEN, N. J.



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ECONOMIZERS

Reduce fuel costs by making use of waste exhaust gases to preheat the boiler feed. Patented construction proven by 29 years of service.

FOSTER

SUPERHEATERS

Improve engine, turbine and boiler economy by enabling a given amount of steam to do more work. Over 10,000 installations in stationary power plants.

POWER SPECIALTY COMPANY, 111 BROADWAY, NEW YORK

Boston Pittsburgh Detroit Kansas City Dallas Chicago Boulder Los Angeles San Francisco London, Eng.

agents in the United States for Ohrviken Aktiebolag, of Kallholmen, Sweden, who are now making a new quality of strong sulphite.

Johaneson, Wales & Sparre, Inc., wood pulp agents, have moved from 16 East Forty-first street to 250 Park avenue, New York.

Marquardt, Blake & Decker, Inc., of 419 Lafayette street, New York, have been appointed a service house for Eagle-A papers, manufactured by the American Writing Paper Co., of Holyoke, Mass. This appointment makes the sixth service house for Eagle-A papers in New York City, the others being the Beekman Card & Paper Company, Inc.; Lasher & Lathrop, Inc.; J. E. Linde Paper Company, Miller & Wright Paper Company and the Whitaker Paper Company.

A petition in bankruptcy was filed January 13 against David Teich, jobber of paper and paper bags, of 1740 Bathgate avenue, New York, and afterward Judge Mack appointed Charles Shongood custodian under bond of $100.

Nathan Leshner, head of the Leshner Paper Stock Company, Inc., dealer in papermakers' supplies, with principal offices in Cincinnati and branches in several cities, returned from Europe January 14 on the steamer Mauretania, accompanied by Mrs. Leshner.

Mark B. Speer, of M. B. Speer & Co., Inc., dealers in paper mill supplies, of Pittsburgh, Pa., sailed from New York on the Franconia January 22 for a four months' trip around the world.

The American Aniline Products, Inc., have moved their New York offices to 45 East Seventeenth street.

The Mellenville Paper Company, of Mellenville, N. Y., has opened New York sales offices at 342 Madison avenue.

Charles G. Keferstein has announced that Gregory F. Demonet has become a full partner with him in the firm of Keferstein & Demonet, importers of paper, of 154 Nassau street, New York.

The Williams-Bauer Corporation has been organized and incorporated under New York State laws to deal in papermakers' supplies on a brokerage basis, with offices in the Tribune Building, 154 Nassau street, New York. R. O. Williams, one of the organizers of the concern, was formerly with the Robert Gair Company in its purchasing department.

The New York office of the Eastern Manufacturing Company, Bangor, Me., is now located at 296 Madison avenue, having been removed from 501 Fifth avenue.

Theodore Conrow

Theodore Conrow, president of the firm of Conrow Bros., paper jobbers, of 114 Worth street, New York, and connected with the paper trade in that city for sixty years, died January 20 at his home, 53 Montgomery Place, Brooklyn, N. Y., in his eighty-first year.

Mr. Conrow was born in New York City and was one of the first members of the Board of Trustees of the Berkeley Institute and a charter member of the Montauk Club. He was also a member of the Sons of the Revolution and of Lafayette Post, G. A. R. He is survived by two daughters.

C. Whitney Walton, Jr., a well known and capable power plant superintendent of the American Writing Paper Company, has resigned his position and will accept a similar position at the Procter & Gamble Co. plant in Cincinnati. It is stated that Mr. Walton's position will be filled by promotion.

Hollingsworth & Whitney Co. have moved their main offices from the Unity Building, Boston, where they have been located for many years to the new Atlantic National Bank Building in Post Office Square, Boston. They will occupy a large part of the 13th floor of this building.

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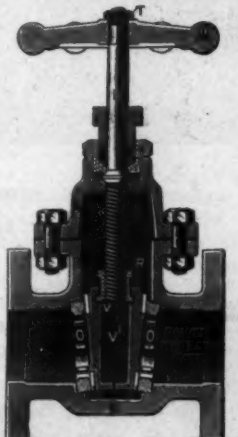

Fig. 401

Double wedge self-adjusting discs of non-corrosive White "POWELLIUM" Nickel. Outside screw stem and yoke.
Steam working pressure up to 250 pounds.

SEE POWELL EXHIBIT SPACE NO. 504, NATIONAL EXPOSITION OF POWER AND MECHANICAL ENGINEERING, DEC. 1 TO 6, 1924, GRAND CENTRAL PALACE, NEW YORK, N. Y.

Write for descriptive literature.

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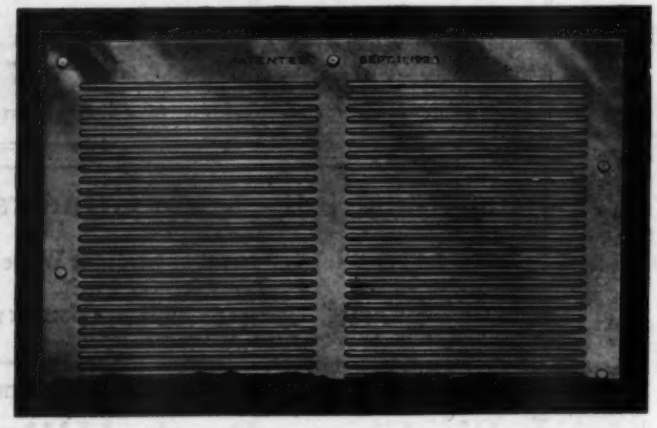

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Technical Developments in the Paper Industry

Domestic and Foreign

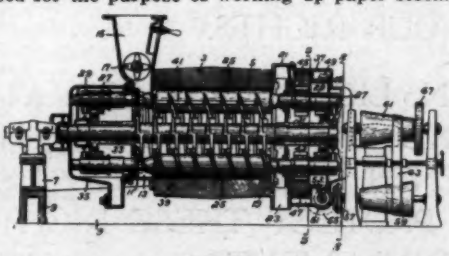
The following abstracts are of the latest developments found in the foreign press and the domestic and foreign patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

Watermarked Paper

IN BRITISH Patent No. 219,541 there is described an apparatus and the method of using the same to produce a watermarked paper similar to a hand-made paper. The operation is carried out on a regular paper-making machine and the device which produces the watermark consists of a longitudinal wire cloth which is arranged above the regular wire cloth of the machine. The former wire contains the watermark and in place of this arrangement there may also be used a circular wire cloth cylinder provided with the watermark. These parts in the machine are so arranged that the mass which forms upon the upper wire cloth is couched off onto the lower longitudinal wire cloth behind the breast roll, in such a manner that the shakes of the lower and of the upper wire cloths at this couching-off are equal to each other. Particular advantage is gained by providing the wire cloth which contains the watermark with a protecting wire cloth. The most essential feature of this process is that the stuff is delivered to or moves upon the upper longitudinal wire cloth or the circular wire cloth in a direction which is opposite to the direction in which the lower longitudinal wire cloth is moving, so that at the point where the web from the upper wire cloth is couched off onto the lower longitudinal wire cloth, it is traveling in the same direction and at the same speed as the lower wire cloth.

Working Paper Stock

THE machine which is shown in the accompanying illustration and which is patented in United States Patent No. 1,518,922, is used for the purpose of working up paper stock. It is formed of a combination of rolls, one for the receiving of the stock and others for treating the stock in the machine. Means are provided for moving each roll bodily over the stock. The speed of the rolls can be regulated at any desirable point.



Asphalt in Paper Making

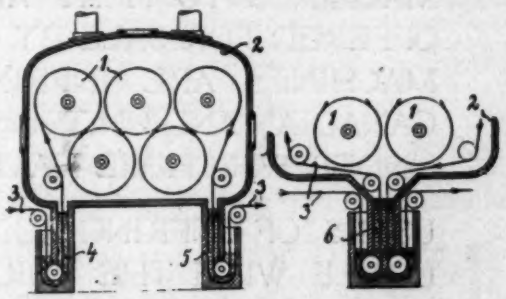
THE use of asphalt in the manufacture of heavier varieties of paper has recently been discussed as destined to become of great commercial importance. In the manufacture of various types of heavy papers and cardboards it often happens that the outer layers are of better quality material than the infilling pulp, but lately a demand has arisen for a high quality paper which shall also be waterproof and vermin-proof. This is desirable where wrappers or cartons are employed in the exporting of fragile or perishable goods. Instead of employing cheap infilling material, a layer of asphalt is substituted, such layers being intercalated between several layers of pulp film, depending on the ultimate thickness of the paper or card to be made.

For this purpose fluid asphalt is mixed with a small quantity of suitable clay, water is added and agitation is set up. The resulting product is then introduced into the normal paper pulp and the whole is dried. Water is driven off and the resulting sheet is richer by the inclusion of one or more layers of impermeable asphalt. It is claimed that not only is the paper or fiber board waterproof but that its strength is increased approximately twenty per cent compared with the non-asphaltic board of similar thickness; also that its durability is greater than that of ordinary heavy paper or cardboard. Technically, this utilization of asphalt is another interesting example of asphalt-water emulsions brought about by the agency of very fine and partially colloidal matter such as clay, though all types of clay known to geologists would not serve the purpose efficiently.

Drying Device for Paper Web

THE illustration shows the type of drying device for removing the moisture from a paper web. This is patented in German Patent No. 404,666.

The invention is concerned with a drying arrangement which consists of several drying cylinders which are located within a vacuum chamber (2). The principle on which the apparatus is constructed and operated is that the drying



chamber (2) is shut off from the atmosphere by means of a liquid which is maintained at a proper level at the points (4) and (5). These are where the paper web enters and leaves the apparatus. The web is seen at (3). The liquid that is used for this purpose must be one that does not wet the paper web, and for this reason mercury is employed. In the smaller figure is shown another construction of this drying apparatus which possesses the advantage of having just one place for the paper web both to enter and to leave the apparatus.

Physical Chemistry of Digestion of Cellulose

A NUMBER of experiments were carried out on the digestion of wood to produce chemical pulp, and from these experiments the following interesting conclusions were derived concerning the digestion process.

For this purpose sawdust containing 42.5 per cent of cellulose was employed. The digestion was carried out at a temperature of 140, 160 and 170 degrees C. and the pressure at which the operation was carried out was eventually raised to nine atmospheres. The digestion liquor used in these experiments was a solution of sulphate of soda or sulphite of soda.

It was established that the reaction which takes place in all these cases is of monomolecular character and the speed of this reaction can be calculated from the well known formula that is employed for these cases, as follows:—

$$K.C.t = 2.303 \log \frac{M}{M - x}$$

The speed of the reaction is thus proportional to the concentration of the digestion liquor.

It was found that at the temperature of 140 degrees C.,

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WE HAVE RECENTLY LEARNED THAT CERTAIN APPARATUS FOR UTILIZING WASTE VAPOR FROM PAPER MACHINES TO HEAT AIR FOR THE MILL IS BEING OFFERED FOR SALE BY OTHERS. WE BELIEVE SUCH MACHINES ARE INFRINGEMENTS OF THE BRINER CANADIAN AND UNITED STATES ECONOMIZER PATENTS UNDER WHICH WE HAVE EXCLUSIVE RIGHTS.

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the speed of the reaction resulting in the disintegration of the wood and the dissolving of the incrustating materials is about twenty times greater than the actual dissolving of the woody fibers themselves. At a temperature of 170 degrees C. this ratio is reduced to as low as 8.7. At a temperature in the neighborhood of 270 degrees C. the speed of the two reaction is sensibly the same. The reaction constant diminishes a little as the solution of these substances progresses. It is therefore established in a theoretical way that the temperature of 140 degrees C. is best suited for carrying out this operation.

The incrustating materials are dissolved more quickly in comparison with the actual cellulose itself when a solution of bisulphite of soda is used than when a solution of sodium carbonate is employed, all other conditions remaining constant. (Svensk-Pappers Tid. 1924, 189-191.)

Bleaching Pulp

PULP is bleached in the apparatus which is shown in the accompanying illustration and which is patented in England.

This process is characterized by being of a continuous nature. The pulp is passed through a series of vessels, to the first of which a solution of hypochlorite is supplied, the acid being introduced into a vessel later in the series. Water is supplied to the last vessels in the series for the purpose of washing the pulp.

Thus the pulp is introduced into a series of vessels (1-5) through a drum (7) in which a proportion of the water is removed. Each vessel of the series is provided with a central partition (8) and with a paddle (10) which works in conjunction with a raised portion (9) in the base of the vessel, by which means the pulp and liquid are maintained in circulation, and by means of a channel (11) which is placed at the upper part of the incline, a portion of the liquid, etc., is delivered to the next vessel in the series. Vessels (1) and (2) are provided with distributors (12) and (13) which are driven in unison with the paddles, and through the first of which a solution of hypochlorite is supplied, and through the second, acid to effect the bleaching, which is completed in vessel (3). Water for washing is supplied through a distributor (14) to the vessel (5), the last of the series, and passes in a direction contrary to the flow of the pulp, through drums (17) and (18), and finally being discharged through a pipe (15).

FIG.1.

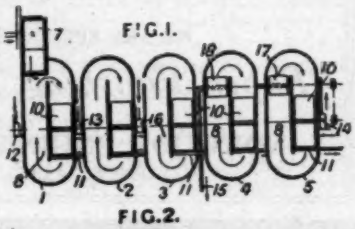
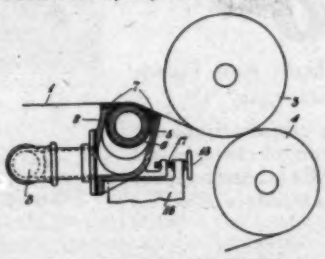


FIG.2.

Suction Box for Paper Machines

THE illustration shows the type of suction box which is used on paper machines and pulp drying apparatus, as patented in United States Patent No. 1,521,659.

The apparatus consists of the combination of a box, means for applying suction to the box and at least one roller which is rotated in that box. This roller is provided with circumferential slots in its surface and the upper edges of the box reach closely to the surface of the roller for the purpose that suction shall be applied only to the portion of the wire screen that is directly supported by the roller.



Rapid Determination of Degree of Beating

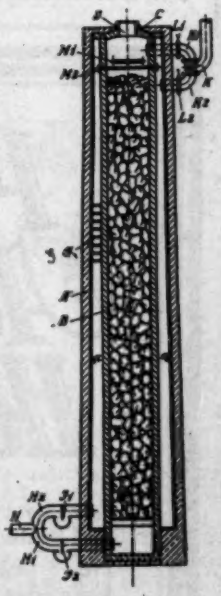
THE degree of beating is determined by weighing the quantity of moist pulp picked up by a knife blade which is passed through the pulp in the beater in a standard manner. The blade may be made of brass or bronze with a wooden handle, and is 250 millimeters long, 20 millimeters broad and 2 millimeters thick at the back, tapering to a blunt edge. The knife is drawn through the pulp in the beater at a speed of eight to ten meters per second, inclined at an angle of about 45 degrees and held stiffly in the hand, with the edge in the direction of the stroke. The cut must be made straight and parallel, not with a circular motion. Any lumps that hang to the blade below those fibers which lie truly across the cutting edge are wiped off by passing the finger along the back and sides of the blade. The moist fibers on the edge are then deposited in a metal pan on a quadrant balance and the product of four separate cuts is weighed. The moist weight in grams per meter length of the blade is characteristic of the length of the fiber and the quality of the pulp. The weight may be corrected for variations which are introduced by the presence of loading material in the paper stuff. Data are given for a rag pulp which does not contain any filling material, the observations being in terms of grams per meter of the blade length. At the beginning of the beating, this was 260 grams per meter length; after the pulp had been beaten for one hour and five minutes this had fallen to 75 grams per meter, and after beating had lasted for two hours and ten minutes it had fallen to 43 grams per meter. These observations are compared with numerical values that are obtained by other methods of testing on the same pulp.

For further details on this interesting article the reader is referred to Papierfabrikant, 1924, pages 265-270.

Tower for Making Sulphite Liquor

THE new type of tower which is employed in the manufacture of sulphite liquor and which is shown herewith consists of one or more tower columns which are filled with clinker, lava and other suitable material. On the other hand, the tower jacket is made of wood, stone or iron cement. The gas may be led into the tower either at the bottom, or at the top, and also in countercurrent between the annular ring that is formed between the tower column and the tower outside jacket. This is evident from the illustration.

(A) is the outer jacket of the tower and is made of masonry and is provided with an internal acid proof lining (a). (B) is the shell of the concentrically arranged tower column. (C) is the cover which is provided with openings (D) for charging the limestone (E) into the column, and (F) is the opening for removal of the spent lime. (G) is the filling which is used in the annular space between the internal and external shells of this apparatus. This filling consists of acid proof materials. The gas enters at the bottom of the tower through the opening (H) which divides into two openings (H_1), and (H_2). One of these openings leads the gas into the internal column and the other into the annular space. Valves are shown at (J_1) and (J_2). (K_1) and (K_2) are also gas openings which are found at the top of the apparatus and (M_1) and (M_2) are spraying devices for distributing the liquor over the surface of the internal tower packings.



In general, two towers are operated together. The gas is led into one tower at the top or the bottom and then enters the second tower. According to the greater or lesser quantity of lime in the liquor more or less of the gas may be introduced into the annular space. This annular space may be sprayed with water or dilute liquor which is made in the first of the two towers or also with completely finished liquor as well.

This apparatus is patented in German Patent, No. 406,121.

Removing Impurities from Paper Pulp

AN IMPROVEMENT in the method of removing impurities from paper pulp, which is of Dutch origin, is patented in British Patent No. 220,139.

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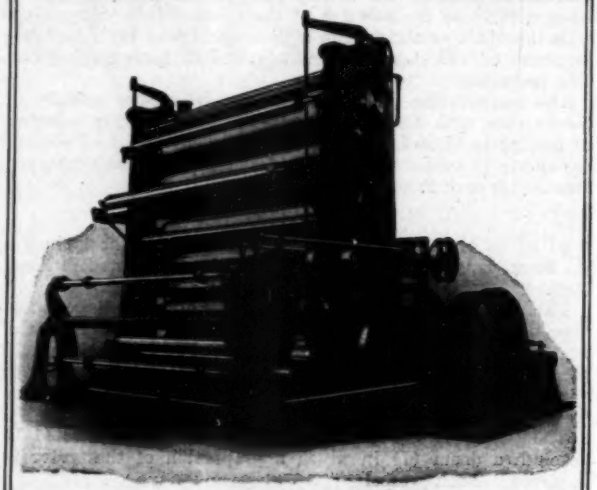

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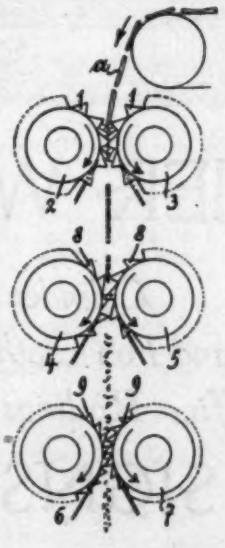
or grit before it flows to the paper-making machine, it is generally run through a sand trap or grit retainer which may consist of a trough in which are arranged one behind the other a number of oblique cross-bars. The paper pulp having to flow over each of these bars and then descend, the heavier components such as sand are separated out in the trough. In order to retain as far as possible any knots or improperly divided portion of paper fiber, a strainer is also used in the form of a very fine meshed sieve. The sand trap is, however, a not altogether satisfactory arrangement, because it does not keep back all the heavy impurities, and it allows the finer particles to pass through. Then again, the paper pulp is liable to clog in the sand trap and then free itself in comparatively large masses, which block up the strainer.

The invention which is being discussed herein makes both the strainer and the sand trap unnecessary. The process in question consists in removing all the heavier and the lighter impurities and then separating the knotted and tangled fibers out of the pulp without the disadvantages occasioned by the use of sand traps. According to the invention, the paper pulp is not led through a sand trap, but is fed continuously into a rotating drum with closed or unperforated sides, which rotates at such a speed that the pulp takes up approximately the position of a cylinder about the axis of rotation, the heavier and lighter particles being held back in the drum, while the cleaned pulp passes over the edge of the drum. It has been found possible by this means to throw out the heavier particles from the paper pulp, without the paper fibers, which themselves possess a higher specific gravity than water, being thrown out. The speed of rotation of the drum can be so selected that the knots are thrown out from the paper pulp, but not the loose fibers. A strainer need not be used in this case and a paper may be made which contains no impurities.

Paper Stock Grinder

THE apparatus which is seen in the accompanying illustration and which is patented in German Patent No. 405,356, is for the purpose of comminuting bamboo stalks and other woody materials that are employed in the manufacture of paper.



The first pair of rolls (2 and 3) serve to slit and cut the pieces of paper stock which are fed to them in the form of board, so that this board is divided up in the width into a number of thin strips. Then the next pair of rolls (4 and 5) and (6 and 7) continue the comminution of the wood, resulting in the production of fine wood chips. It is important that the stock that is fed to the first pair of rolls has its fibres arranged in the direction of the axis to the rolls.

This pair of rolls is provided with conical shaped teeth (1) which are arranged in such a manner that they engage with the teeth on the other roll so as to cut the wood as indicated above. The cutting teeth on the other rolls are made in such a manner that the further comminution of the stock is effected with ease and effectiveness. The speed of the sets and also of each one in the set is controlled so that maximum efficiency of cutting is obtained.

Waste Strawboard Utilization

A PROCESS has been developed in England, according to the World's Paper Trade Review, on the utilization of waste strawboard. This is employed for making of good strong fully bleached pulp. Old strawboards and boxes are employed as the raw materials. Inasmuch as the present value of these raw materials is practically nothing, the process is of considerable interest.

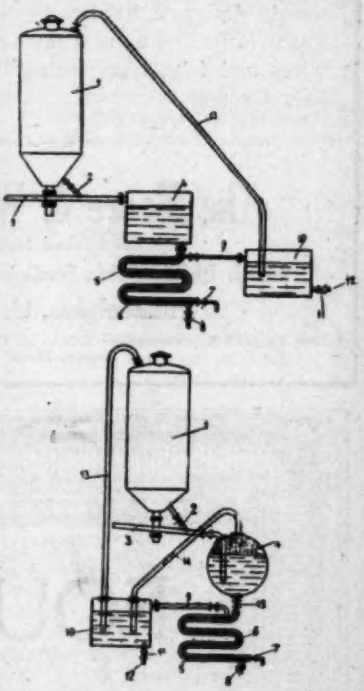
It is claimed that a patent chemical treatment is used in converting these low grade raw materials into a good quality straw pulp. The process lasts just three quarters of an hour. A feature of the process is that all boiling and elaborate bleaching are eliminated and a simple and inexpensive method substituted. It can be adapted to any mill which has a pulper or kneader to reduce the raw material and screens.

The yield from the waste strawboard is greater than with the original straw, since in the preparation of the board a considerable proportion of the small cells and impurities have been removed. The resulting fiber is well suited for manufacture of parchments, litho, printing and specialty papers.

Recovering Waste Heat from Digesters

LARGE amounts of heat are generally allowed to go to waste in the form of by-products and waste in the form of by-products and waste products that are obtained from the cookers and digesters in pulp mills. A French patent, No. 564,252, describes an arrangement for the recovery of this heat. The apparatus is shown in the accompanying sketch.

The cooker is placed in connection with a heat exchanger through the means of an intermediate tank. The heat exchanger works on the counter current principle and is connected on one side with a pipe for cold water and on the other with one leading to the hot-water tank. All the connections are made in such a manner that the waste liquors and the wash waters from the cookers and digesters, which are rendered available intermittently, are first received in the intermediate storage tank and then allowed to flow in a continuous manner through the heat exchanger in counter-current to the flow of cold water. Their heat is thus absorbed by the cold water.



The digester itself is connected with the hot-water tank by means of a special pipe line, which allows the steam developed to be discharged before blowing the liquor.

The intermediate storage tank and the hot-water storage tank are connected together by means of a suitable pipe line which is for the purpose of conducting the steam vapors that are released from the final evaporation of the residual liquor which is emptied under pressure into the intermediate storage tank and thence into the hot-water storage tank, which is itself under atmospheric pressure. Thus in this manner the large amount of heat in the form of steam, which is always evolved and generally lost when the pressure within the digester is released, which results in evaporation of the water in the digestion liquor, is used to good effect.

The pipe lines connecting the different parts of the installation are provided with suitable valves so that the progress of the operation may be properly regulated and the installation operated continuously.

Sulphate Soap and Sulphate Oil

DURING the war, according to the Svensk Pappers-Tidn., 1924, page 168-170, these products, sulphate soap and sulphate oil, possessed a relatively great importance even in the crude state, as substitutes for soaps and lyes. But in normal times it has appeared that it is not possible to obtain marketable products of this character except by subjecting the crude materials to a refining process.

The sulphate soap is the principal by-product in paper mills that manufacture sulphate pulp. Ordinarily this soap is converted into sulphate oil by treating it with sulphuric acid or a bisulphite. When this is done, the alkali is recovered in the

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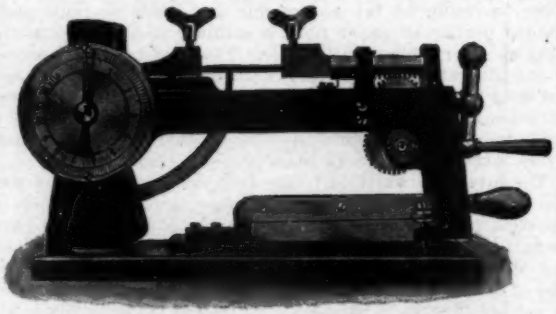
Poller Tensile Strength Tester No. 339



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state of sulphate. It is possible to extract the soap from the evaporated waste liquors from the manufacture of sulphate pulp, the extraction being effected by means of alcohol. But it has been found more advisable and more practical as well as less costly to carry out this extraction with the aid of a solution of sodium carbonate, about ten per cent strong.

To be sure the soap is insoluble in this solvent and only the "alkali lignin" is dissolved and removed. The wash liquors may be added to the digestion liquor and thus there is no loss of valuable chemicals when this process is carried out. However, the soap which has been purified in this manner still cannot be employed either for washing or for the sizing of paper because of the resinous matters that it contains. The best way in which to remove these resinous matters is to fractionate the product.

To accomplish this, the soap is dissolved in water and a 50 per cent lye is gradually added. Many methods are known for the removal of the resinous matter such as by means of ether. It appears that it is those very resin acids that are the most interesting products that are contained in sulphate soap.

Removal of Foam from Paper Stock

FOAM formation is prevented and almost completely overcome by means of the device which is patented in German Patent, No. 402,764. This process pertains to the prevention of foam in the paper stock, back waters and similar liquids. The process depends on subjecting the stock and the back water to the action of a vacuum which results in the removal

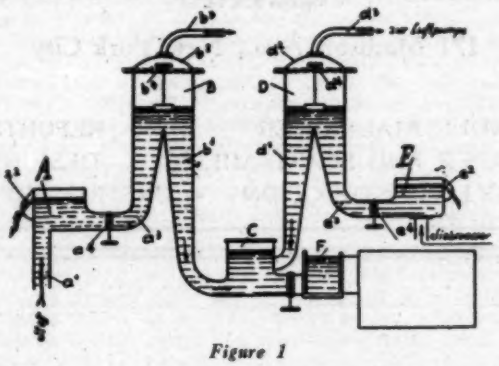


Figure 1

of the foam that exists in the material and the prevention of the formation of foam thereafter.

In accordance with the nature of the stock and the use to which it is going to be put, the defoaming action takes place either before or after the mixture of the stock with the back water or fresh water, or else while the liquid is being mixed with the stock.

Figure 1 shows a diagrammatic outline of the apparatus which removes the foam before the paper stock and the back water are mixed together. The stock comes from the stock pump through the pipe (a^1) into the container (A), in which

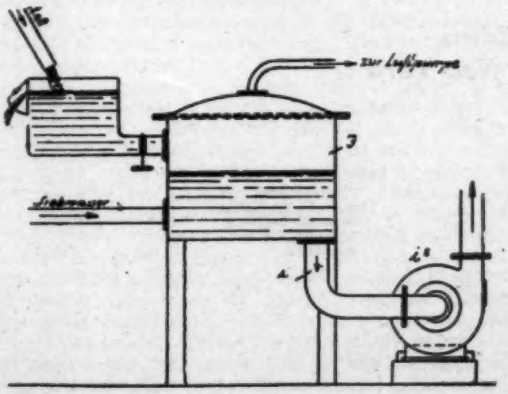


Figure 2

the level of the liquid is maintained constant by means of the overflow device (a^2). The stock rises after flowing through the regulating valve (a^4), when a sufficiently high vacuum is produced in the container (B). Then it passes through the pipe (a^3) and finally through the pipe (b^1) into the mixing box (C). While the stock is subjected to the prevailing vacuum in the container (B), the air that is mixed with it is removed and taken away through the air pump. In order to prevent, for example, in the case of stock which does not contain much air, the rise of the vacuum above the ordinary degree, with the result that the level of the liquid rises to the pipe (b^3) leading to the air pump and hence penetrating into this pipe, the float valve (b^4) closes and prevents the flow of stock into the container.

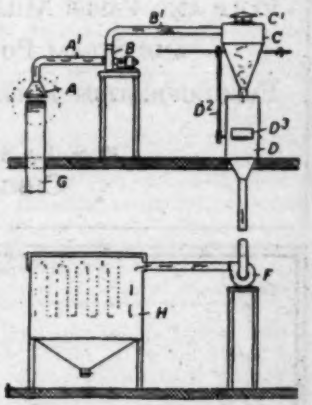
The effectiveness and the manner of working of this defoaming apparatus when treating back waters is sensible the same as has been described.

Figure 2 shows another form of the apparatus in which the evacuated space is indicated by (J), the pump by (i^2). This apparatus shows how the paper stock is removed.

For further details see German Patent, No. 402,764.

Separating Waste Paper

A RECENT British Patent is concerned with the separation of waste paper from refuse materials and the apparatus that is employed for this purpose is shown in the accompanying illustration.

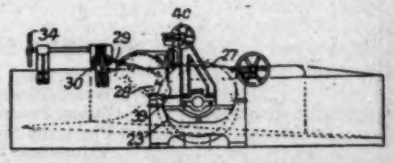


The apparatus consists of the canopy (A) over a travelling band (G) carrying the refuse. A centrifugal fan (B) or the like withdraws the paper from the refuse by suction through the canopy (A) and the pipes (A′) and (B′) to a conical hopper (C) which is provided with parallel spiral ribs for dislodging the greater part of the dust from the paper, which then passes into a sifter (D) and is delivered laterally through an aperture (D^3) into a wire or other basket. The dust-laden air is passed by the suction fan (F) or by gravity into a textile air filter (H), where the dust is separated in the usual manner. The sifter may be vibrated by a pulley and band gear (D^2) to separate further the dust from the paper. An air relief pipe (C′) with fixed partitions breaks up the rotation of the air from the fan in the usual manner as it passes off. (W. T. E. Barker and D. Rowell & Co.)

Pulp Beater

AN IMPROVEMENT in the construction of a pulp beater is the subject matter of a recent British patent. The new type of beater is shown in the illustration.

In this case, the beater roll is made small so as to enable it to be run at high speeds and in addition to the fixed backfall 23, an additional backfall 28 of bronze or other anti-rust metal is provided. This additional backfall is adjustable as far as height is concerned. An adjustable guard (27) is also provided, the edge (39) of which is in frictional engagement with the periphery of the drum. The adjustable backfall (28) is mounted in quadrants (29) on a shaft (30) and is adjusted by worm gearing operated by a handwheel (34). The guard (27) is mounted on the beater roll bearings and moves with them, and is adjustable on them by means of worm gearing which is operated by a handwheel (40).



James L. Carey
Paper Mill Architect and Engineer
208 N. Laramie Ave.,
Chicago
Cable Address: JASCAR, Chicago
Codes ABC 5th, Western Union

H.S. TAYLOR, Consulting Engineer
Member Am. Soc. C. E.—Am. Soc. M. E.—Eng. Inst., Can.
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ELECTRIFICATION PAPER MILL PROPERTIES
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CHICAGO

KARL A. LEFREN
Consulting Engineer
Member A. S. M. E.
171 Madison Ave., New York City
INDUSTRIAL POWER PAPER AND BOARD MILLS MILL CONSTRUCTION
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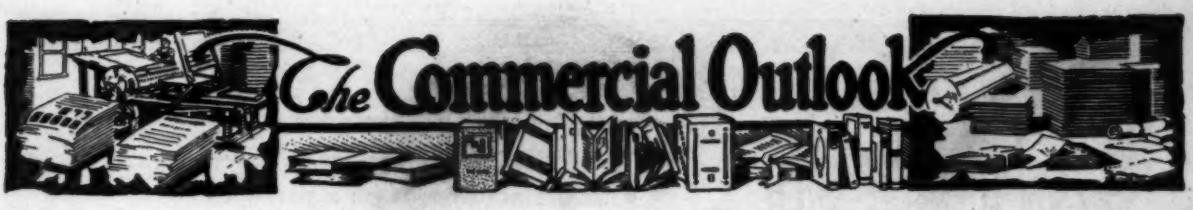

New York, February 2, 1925.

BUSINESS in paper of most kinds is developing in fairly good volume. There is a consistency to the demand which indicates healthiness; in fact, every sign points to buyers operating on a reserved scale, covering, in the main, their known requirements and doing little purchasing for stocking-up purposes. There is room for improvement; that is to say, more demand is needed to provide sufficient business to give work to all the paper and board mills of the country to warrant full production, yet, viewed as a whole, the industry is well engaged with the movement of some kinds of paper large enough to justify maximum output by manufacturers.

On the eve of the annual convention of paper manufacturers in New York, the market is characterized by at least as much activity as is ordinarily witnessed at this time of the year. Perhaps consumption of paper, in the aggregate, is running a little beyond what has been regarded as normal tonnage. Certainly, demand is fully up to normal. Maybe this fact is lost sight of because there are some mills operating on short schedule and because manufacturers, in certain instances, are competing rather keenly for orders. This, however, is the result of expansion in paper manufacturing facilities in the United States which have placed producers in a position where they can make a great deal more paper and board than several years ago. The industry in this country today is so well equipped that it can produce a greater quantity of product than is required except in times when business is bordering onto a boom or when a sizable proportion of the output can be marketed abroad.

The prospects for increased business are favorable. January as a general thing is a comparatively quiet month for the paper trade. It is an in-between season, after the pre-Christmas holiday period and prior to the spring retail shopping season. February should witness a broadening of demand for paper of most kinds and box board. Merchants all over the country are preparing for the spring movement of merchandise, when business—wholesale and retail—usually undergoes considerable expansion. Obviously, this leads to a larger consumption of paper of nearly every description. More newsprint is used by publishers in printing the department store and other display advertisements, bigger amounts of wrapping and tissue papers are consumed in the retail trades, and there is a larger consumption of board, fine papers and specialties. The general business outlook is bright and if trade activity of a general nature develops in the volume present signs point to, the demand for paper is due to increase substantially.

There is one situation existing in the paper market which is most displeasing to manufacturers. That is the prevailing level of paper prices. It is a fact that very little change has been made in quotations on any kind of paper in recent months whereas raw materials have mounted in cost to an extent where manufacturers are afforded scant profit in producing paper. Some paper mills doubtless are being operated today at no profit whatsoever, and it can be stated that a large majority are working on a very narrow margin of gain. Manufacturers have been hesitant to advance prices of their product despite the rise in production costs; they have been fearful that higher prices for paper would disturb the market and probably cause consumers to hold up buying.

Obviously, this condition cannot continue indefinitely. Either paper manufacturers will have to raise the prices of their product or else effect a lowering of raw material costs. Since there seems little probability of any marked recession in rag, pulp and other raw material values, owing to the fact that these commodities are in far from plentiful supply with conditions at producing sources marked by pronounced strength, it appears logical to believe that the only solution of the problem is for manufacturers to advance prices of paper. If this proves to be the case, some rather sharp increases in quotations on paper can be expected. Prices could be raised 15 or 20 per cent on most kinds of paper and still be well below the relative level of raw material costs at present.

Consumers seem to appreciate the price position and are not hesitating to buy paper freely; that is, against direct requirements. At the same time, there is reluctance shown about anticipating wants. This is a condition which is prevalent not alone in the paper trade; it is to be observed in practically every commodity market. Consumers are proceeding carefully in ordering supplies and are doing little stocking up. There appears to be a general disinclination to buy very far ahead. Concerns in the wholesale and retail trades well equipped financially and which usually contract far into the future for their supplies are today "pulling in the strings," as the saying goes. They are keeping their resources as liquid as possible, and all manufacturing industries are feeling the effects of the policy, the paper industry included.

Figures just issued show that a new high record of newsprint production was established on the North American Continent in 1924. The total was 2,900,000 tons, which exceeded 60 per cent of the world production of this class of paper. United States mills made 1,471,000 tons of newsprint last year, a decrease of 14,000 tons from 1923, and of 40,000 tons from the high mark of 1920. Canadian newsprint production amounted to 1,333,000 tons, an increase of 87,000 tons from 1923 and 54 per cent more than in 1920. The one modern newsprint mill in Mexico made approximately 11,000 tons, and a small mill in Newfoundland contributed 65,000 tons to the continental total.

The November production of paper in the United States, as reported by identical mills to the American Paper and Pulp Association and co-operating associations, showed a decrease of 10 per cent compared with the October output, following a 10 per cent increase in October over September. Total production in November of all kinds of paper amounted to 445,954 tons, against 477,585 tons in October and 434,000 tons in September. Mill stocks of paper increased slightly during November from a total of 232,531 tons of all grades at the end of October to 235,559 tons at the end of November. Shipments from mills in November aggregated 447,214 tons, contrasted with 480,702 tons in the preceding month.

Box board production in the U. S. in November was on a smaller scale than in October, accordingly to the monthly report compiled and issued by the Department of Commerce, which put the November total output at 163,167 tons of board of all kinds, against 186,053 tons in the preceding month, and 179,982 tons in September. The October production was the largest in any month for the year up to December. Board mills received orders in November calling for 166,877 tons of board, compared with 169,631 tons in October, while unfilled orders at the end of November amounted to 91,127 tons, contrasted with 83,390 tons at the close of October.

Manufacturers of fine paper advanced prices in January, a rise of two cents per pound on all lines of bond and ledger of rag content selling at 20 cents or higher and of one cent on lines quoted below 20 cents being put into effect. This increase was expected and did not disturb the market in the least. Book paper prices are quotably maintained though some manufacturers are said to be granting slight concessions in their anxiety to land tonnage orders. Wrapping and tissue paper quotations are steady, and specialties show a firm price tone. Board quotations are well maintained. Eastern mills quote $50 a ton delivered New York for plain chip and $55 for filled news board, and some of the Middle West mills are reported quoting in excess of these figures.

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Domestic Raw Materials

Papermaking Rags

January was a comparatively quiet period for papermaking rags. Most consumers were not in a great deal of evidence as buyers, and while routine business transpired with manufacturers absorbing such supplies as they had need of freely, the market in comparison with the several previous months was a quiet affair indeed. Probably the holidays and the inventory season had something to do with the quietness, and perhaps it was due to papermakers having bought fairly heavily in the two last months of the old year, thereby enabling them to hold off in further buying for a while after the turn of the year. The slowness of the market was particularly emphasized in the low grades such as are used in the manufacture of roofing paper, which were very active prior to January.

The quieting of the market has had little important effect on quoted prices, however. Market levels, in fact, have been well sustained. As a general thing, when demand for papermaking rags subsides prices almost immediately recede. Probably the steadiness of prices in the face of the limited buying recently is ample proof that the statistical position of rags is strong; that available supplies in this country and in various parts of the world where the United States secures a portion of its requirements in rags are anything but plentiful; that the large consumption by American paper mills—especially those plants manufacturing roofing and flooring felt—in the latter half of 1924 has so reduced accumulations the world over that dealers are in a position where they can hold up the market whether demand develops in big volume or not.

The situation has not been lifeless by any means. Routine demand has been of fair dimensions, and the bulk of the rags offered by dealers and importers have found takers. But there has not been that snap to the demand that featured the market in the closing months of last year. Roofing felt manufacturers have purchased in a more restricted manner, and writing, blotting and other paper manufacturers have operated as buyers in a rather spotty way.

Importers put much stress on the difficulty they are experiencing in getting rags in Europe except at high prices. It is stated that dealers on the other side of the Atlantic are themselves having trouble accumulating sizeable quantities of rags and that therefore they are able to insist on the prices wanted when negotiating with American buyers. In the United States, collections are light, according to reports. Despite the attractive prices prevailing fewer rags are coming in from country districts, which may be due in part to the winter weather which handicaps collectors, and in part to a lack of rags at the source of supply. As the spring draws nearer incoming supplies should increase, yet it does not appear wise for paper manufacturers to bank too much on spring collections this year because the probabilities are they will not measure up to normal owing to the high prices ruling thus far this winter, which have doubtless stimulated collections and thus removed a great many rags which otherwise would not have come out until the spring.

New cutting are standing about stationary in price with some of the scarce grades exhibiting a rising tendency though on the other hand with some tending to ease. Dealers in New York quote 15.50 cents a pound f. o. b. that city for No. 1 white shirt cuttings, 10 cents for fancy shirt cuttings, 14 cents for unbleached muslins, 11.75 cents for blue overall cuttings, 9 cents for washable and 12 cents for light silesias.

Old white rags are quotably steady though they are on a wide price range, dealers asking from 7.50 to 8.50 cents a pound at shipping points for No. 1 repacked whites. Repacked thirds and blues are selling at 4.25 to 4.50 cents at dealers' points, and rough blues at 3.50 to 3.75 cents.

Roofing rags are quoted at 3.30 cents a pound and higher f. o. b. shipping points for No. 1 packing, and about 3 cents for No. 2 grade. Above these prices is frequently asked. Importers in New York report sales of foreign dark colored cottons at 3.20 cents a pound ex dock New York.

Average quotations f. o. b. shipping points and ex dock New York are as follows:

New Stock—	New York and Chicago
White shirt cuttings, No. 1	15.50-16.00
White shirt cuttings, No. 2	11.00-11.50
Fancy shirt cuttings	10.00-10.50
Washables, No. 1	9.00- 9.25
Unbleached muslins	14.00-14.50
White lawns	13.50-14.00
Overall cuttings, blue	11.50-12.00
Black silesias	6.25- 6.50
Light flannelettes	12.50-13.00
Canton flannels, bleached	13.50-13.75
Canton flannels, unbleached	12.25-12.50
Shoe cuttings, bleached	13.00-13.50
Shoe cuttings, unbleached	12.00-12.50
Light silesias	11.75-12.00
O. D. khaki cuttings	7.00- 7.25
Mixed khaki cuttings	6.25- 6.75
Corduroy cuttings	6.00- 6.25
Cottonade cuttings	5.25- 5.50
Linens, No. 1 white, foreign	17.00-18.00
Light prints, foreign	9.00- 9.50
Old stock—	
Whites, No. 1, repacked	7.50- 8.50
Whites, No. 2, repacked	5.00- 5.50
Whites, house soiled	4.00- 4.25
Whites, street soiled	3.75- 4.00
Lace curtains	5.50- 6.00
Thirds and blues, rough	3.50- 3.75
Thirds and blues, repacked	4.25- 4.50
Black stockings	4.50- 4.75
Cotton canvas, No. 1	5.75- 6.25
White cotton batting	4.75- 5.00
Roofing, No. 1	3.25- 3.40
Roofing, No. 2	2.95- 3.05
Dark colored cottons, foreign	3.05- 3.20
Blue linens, foreign	6.00- 6.50
Gray linens, foreign	6.50- 7.00
White linens, foreign	11.00-12.00
Light prints, extra, foreign	5.00- 5.50

Rope and Bagging

It cannot be said that current demand from paper mills for old rope is very brisk. Nevertheless most consumers are showing a good amount of interest and any rope offered within what are regarded as reasonable price bounds soon finds buyers. Indications are that papermakers as a rule have fair-sized supplies of old rope on hand; at the same time they appreciate that the production of this commodity is below normal owing to the limited activity in the shipping industry, and consequently are absorbing such lots as come into the market. Prices are holding quite steady. Domestic No. 1 old manila rope is selling at 6.75 to 7 cents per pound f. o. b. dealers' shipping points, and foreign manila rope is bringing close to the same figures ex dock New York. Importers say it is a hard matter to buy old rope in Europe at prices on a parity with the market here, most shippers abroad wanting at least 6.75 cents from dealers. Strings are firm and in good demand, mixing strings fetching 2 cents at shipping points and probably higher for selected packing.

Old bagging is firm. Demand is of moderate volume and available supplies are limited. Roofing paper mills have con-

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sumed big lots of scrap bagging in recent months, so that little No. 1 bagging has been accumulated. Dealers quote 2.75 cents a pound at shipping points for No. 1 scrap bagging, and 2.10 to 2.25 cents for roofing bagging.

F. o. b. shipping point and ex dock quotations follow:

	New York and Chicago
Gunny, No. 1 domestic	3.15-3.25
Gunny, No. 1 foreign	3.10-3.20
Scrap bagging, No. 1	2.65-2.75
Roofing bagging	2.10-2.25
Wool tares, heavy	2.75-3.00
Wool tares, light	2.65-2.85
Manila rope, No. 1 foreign	6.50-6.75
Manila rope, No. 1 domestic	6.75-7.00
Sisal strings	3.00-3.25
Mixed strings	1.90-2.00

Old Paper

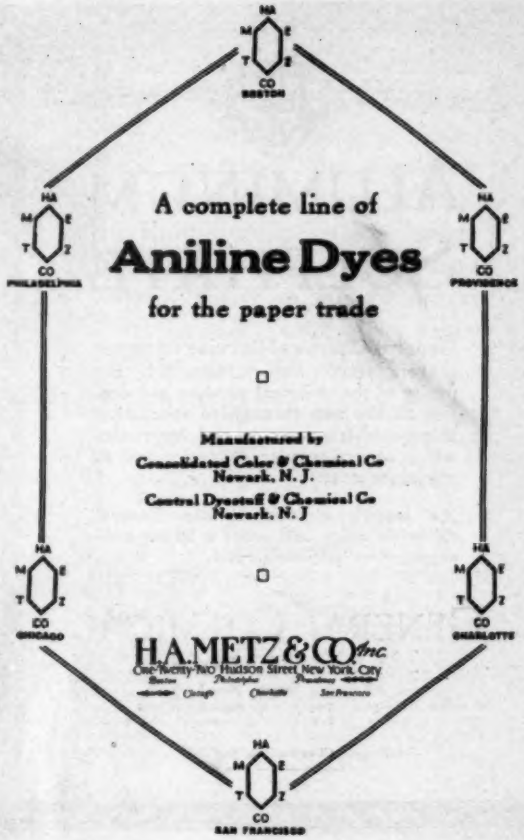
The tone of the old paper market has strengthened to a pronounced degree. Also, prices on nearly all grades have scored sharp advancement. The market began to perk up almost immediately after the holidays, and despite the fact that in the meantime some substantial gains have been made by prices, the situation at present is firm decidedly, and there appears every reason to believe market levels will go higher. Weather conditions were an important factor in starting the uptrend in prices. Two heavy snowfalls occurred in New York early in January and the streets of that city became so blocked that collectors were severely handicapped in gathering waste paper. Prices stiffened and the minute the New York market began to show signs of strength, values also appreciated in the other large collecting centers of the country.

Shavings are quoted at 3.75 to 4 cents a pound f. o. b. dealers' shipping points for No. 1 hard white, and at 3.25 to 3.40 cents for No. 1 soft white shavings. Low grades, like news and mixed stock, have advanced sharply. Flat folded news has sold at 90 cents a hundred pounds f. o. b. New York, and No. 1 mixed paper at 75 cents. Common mixed is bringing 55 cents, and over-issue news 1.05 cents per pound. Old kraft paper is up to where dealers insist on at least 2.10 cents a pound at shipping points, while 2.20 cents is asked for white blank news. Heavy books are quoted at 1.35 to 1.50 cents, and ledger stock at 1.65 to 1.80 cents.

Quotations f. o. b. shipping points are as follows:

	New York and Chicago
Hard white shavings, No. 1	3.75-4.00
Hard white shavings, No. 2	3.20-3.40
Soft white shavings	3.25-3.40
Colored shavings	1.50-1.75
Heavy book, No. 1	1.35-1.50
Crumpled book, No. 1	1.10-1.20
Ledger stock	1.65-1.80
Kraft, No. 1	2.10-2.20
Manilas, No. 1	1.00-1.10
White blank news	2.20-2.30
Over-issue news, No. 1	1.05-1.10
Folded news	.90- .95
Mill wrappings	.75- .80
Mixed paper, No. 1	.75- .80
Common paper	.55- .60

Chemical Pulp

Probably the best manner in which to describe the chemical wood pulp market is to say that the largest domestic producer of bleached sulphite is reported operating at capacity for the first time in at least two years. This indicates, of course, that a good demand prevails for pulp. That is exactly the case. Domestic manufacturers are apparently enjoying more favorable market conditions than in a long time; prices of foreign pulps are high and steady enough to sustain domestic pulp values, and the supply situation in foreign pulp is such that domestic producers are securing more business than has been their lot in a couple of years. Not that there is any real scarcity of foreign pulps, because there isn't, but quite a few paper manufacturers are buying domestic pulps because they do not have to pay any more or

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General Chemical Service to paper makers starts with safeguarding the purity of the chemical product and carries all the way through to scheduling shipments from plants and by routes which assure regular deliveries and at minimum cost.

An inquiry directed to any General Chemical office will enlist a nation-wide organization in your service.

GENERAL CHEMICAL COMPANY

40 Rector Street, New York

Baltimore Cleveland Denver Philadelphia Providence
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The Nichols Chemical Co. Ltd., Montreal

Cable Address: Genchem, N. Y.

EASTERN MANUFACTURING COMPANY

BLEACHED SULPHITE

Made from spruce grown in the forests of Northern Maine.

Send for Samples

EASTERN MANUFACTURING CO.
292 Madison Avenue NEW YORK

"MICHIGAN" Combination Steel and Wood Pipe

LONG DISTANCE CONVEYOR OF WATER AND PAPER STOCK IN PAPER AND PULP MILLS—Specially Adapted to Carry Sulphite, Ground Wood and "White Water"

Eighteen reasons why you should use "Michigan" combination steel and wood pipe

1—Durability of Wood Shell. 2—Sanitary. 3—20% more capacity than Cast Iron Pipe. 4—Simplicity in handling. 5—Light in weight. 6—Speed in laying. 7—Protects against freezing. 8—Not affected by Electrolysis. 9—Rigid inspection of materials. 10—Efficient construction of stave. 11—Strength of steel banding. 12—Protection of banding with asphalt coating. 13—Cannot burst under pressure. 14—Can be laid in a wet trench. 15—Short curves without specials. 16—Low installation and maintenance cost. 17—Responsibility of company. 18—Not affected by sulphur or chemical solutions.

THE MICHIGAN PIPE COMPANY

Dept. 17 **BAY CITY, MICHIGAN**

New York City, N. Y.....17 East 42nd St.
Oklahoma City, Okla.....105 West 16th St.
Chicago, Ill. .....Leiter Bldg., 15 East Van Buren St.
Boston, Mass.....Room 737, Oliver Bldg.
Cleveland, Ohio.....919 Ulmer Bldg.
Chattanooga, Tenn.....702 James Bldg.
Philadelphia, Pa.....318 Widener Bldg.
Pittsburgh, Pa.....323 Fulton Bldg.

"Steel for Strength—Wood for Durability"

not much more than for the imported article while deliveries are obviously quicker.

The market is qiute firm—firmer than has been recorded in a lengthy period. Producers are holding to certain prices and seem to be encountering no great difficulty in getting the figures quoted. Bleached sulphite is selling at 3.75 to 4.25 cents a pound f. o. b. pulp mills, depending on the quality of the pulp concerned, and No. 1 unbleached sulphite is fetching 2.75 to 3 cents at producing mills. No. 1 kraft is bringing 3 cents per pound, and bleached soda pulp 3.50 cents at pulp plants. News grade sulphite is moving freely at around 2.60 cents f. o. b. producing mills.

F. o. b. pulp mill quotations are as follows:

Bleached sulphite	3.75-4.25
Easy bleaching sulphite	2.80-3.00
Unbleached sulphite, No. 1	2.75-2.90
News grade sulphite	2.50-2.75
Soda pulp, bleached	3.50-3.75
Mitscherlich, unbleached	3.25-3.75
Kraft, No. 1	2.75-3.00
Screenings, refined	1.50-1.75

Mechanical Pulp

Ground wood is in a firm market position and is tending upward in value. Demand is developing in consistent fashion and in fairly heavy volume; in fact, there are indications that in some parts of the country the needs of consumers are running in excess of the offered supply; in other words, that buyers are not finding it an easy matter to get all the mechanical pulp they want. There is no doubting that statistically ground wood is marked by a very strong condition. Severe weather in most grinding districts has so handicapped manufacturers that production has decreased to a substantial degree, whereas consumption has kept up on a high level, with the result consumers and producers have eaten into their reserve stocks. By way of example, latest available figures show that production of ground wood in the United States in November totaled 78,884 net tons, against 92,449 tons in October, while mill stocks were reduced to 119,391 net tons at the end of November, compared with 124,024 tons at the end of the preceding month.

Domestic producers quote around $32 a ton f. o. b. pulp mills for prime spruce ground wood. Quotations range down to $30 and up to $35, depending on the air dry test and the freight to consuming points, while quotations from Canadian grinders range from about $28 a ton upward although most producers across the border ask $30 or higher. Prices of Scandinavian ground wood have stiffened, most quotations received lately being equivalent to around $37 a ton ex dock New York or other American Atlantic ports.

Chemicals

Papermaking chemicals generally display firmness in price. Few changes of consequence were made in quotations at the turn of the year when new contracts were arranged but it was noticed that such revisions as were announced were mostly in an upward direction. Bleaching powder is selling at 1.90 to 2 cents a pound on contract, with some producers asking a little above 2 cents for spot shipments. Casein is steady around 10.50 cents a pound. Soda ash is quoted at 1.38 cents on a flat basis, and caustic soda at 3.15 cents per pound.

Average quotations f. o. b. works are as follows:

Alum, lump ammonia	3.25- 3.50
Alum, lump starch	3.75- 4.00
Blanc fixe, powder	3.75- 4.00
Bleaching Powder	1.90- 2.00
Brimstone (long ton, at mine)	17.00-20.00
Casein (duty paid)	10.00-11.00
Caustic soda, spot delivery	3.15- 3.20
China clay, domestic washed	12.00-16.00
China clay, foreign	15.00-20.00
Rosin, grade E	6.00
Satin white	2.00- 2.25
Soda ash, 58 per cent light (bags)	1.38
Starch, papermakers', in bags	3.40- 3.70
Talc (ton)	16.00-17.00

THE fact that new customers are constantly joining our ranks, and very few old ones ever leave us is more than a matter of gratification to us. It is a good reason for your using Hercules Wood Rosin. If you are one of those on the "outside", write us for information about this product.

HERCULES POWDER CO.

941 Market Street, Wilmington, Delaware

Sales Offices:

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Chicago, Ill. — Louisville, Ky.
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SOLVAY

STANDARD IN SODA SINCE 1881

Quality and Service Guaranteed by the Largest Source of Supply

Soda Ash

Caustic Soda

Over 75 stock distributing points assure prompt shipment with minimum transportation charges.

The Solvay Process Co.

Detroit, Mich.; SYRACUSE, N. Y.; Hutchinson, Kas.

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Boston Cincinnati Cleveland Detroit Pittsburgh
Chicago Syracuse Indianapolis

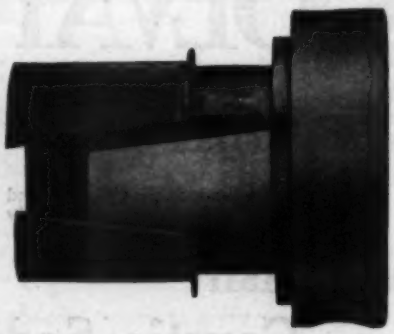
INTERNATIONAL

An organization does not grow to large size unless there are sound reasons for its popularity. In the case of International Salt, several factors operate to place it on a high plane in the minds of consumers.

Tremendous natural resources, refining facilities of large and scientific scope, together with a personnel imbued with the spirit of service, have established the advantages of International Salt for all industries.

INTERNATIONAL SALT COMPANY, Inc.
SCRANTON, PENNSYLVANIA
NEW YORK OFFICE: 2 RECTOR STREET

THE ONEIDA CHUCK for use with Paper or Strawboard Cores



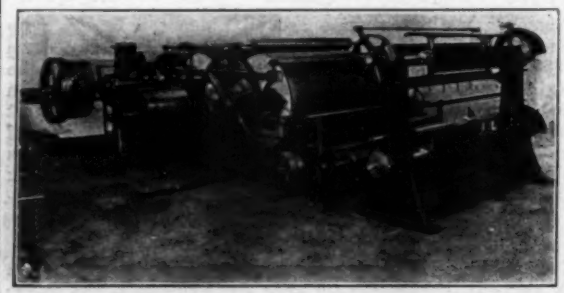
This chuck is so designed that it cannot split or damage the paper core on which the paper is wound and allows the roll to be run down to the last thickness of paper.

The conical or wedge-shaped chucks now commonly used with paper cores invariably split the paper cores so that from ½" to 1" of paper next to the core is damaged. The elimination of this waste will soon pay for the equipment on each machine.

Our Chuck allows the use of a cheap non-returnable paper core that once used can be thrown with the waste and sold.

Let us make up a trial set for you

ONEIDA CHUCK COMPANY
RHINELANDER, WISCONSIN



Latest Type Crepe Machine

Dryer 48" diameter by 84" face.

Same machine can be built in any desired width and with any number of dryers. This machine is equipped with Drum Winder and Double Automatic Collapsing Reel.

Hudson-Sharp Machine Co.
Green Bay, Wis.

Selling Agents:
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166 Jackson Blvd., Chicago

New Papers

Writing—	
White rag	22-45
White sulphite	11-30
Colored rag	17-40
Ledger—	
White rag	22-50
White sulphite	13-30
Colored sulphite	40-30
Colored rag	17-50
Bonds—	
White rag	20-45
White sulphite	10-30
Colored sulphite	10-30
Colored rag	17-50
Book—	
No. 1 S. & S. C	6.50- 7.25
Machine finished	6.25- 7.00
English finished	6.50- 7.25
Coated and enameled	8.50-14.00
Lithographed, M. F	9.00-15.00
Newsprint—	
Rolls, contract	3.50-.....
Rolls, transient	3.65-.....
Sheets	4.00- 4.25
Side runs	3.00- 3.25
Cover Stock—	
Coated, both sides	10.25
Coated, one side	10.15
Tissue—	
No. 1 white, 20x30	.75- .85
No. 2 white, 24x36	.70- 75
No. 1 manila, 24x36	.70- 75
Kraft	.90- 1.00
Wrapping—	
No. 1 Kraft	5.50- 6.25
No. 2 Kraft	5.00- 5.50
Boards—	New York and Chicago
Solid news	55.00-60.00
Straw	50.00-55.00
Plain chip	50.00-55.00
White coated chip	65.00-70.00
Manila coated chip	55.00-60.00
Binder's board	70.00-75.00

New Book on Paper Making

The fifth and final volume of "Manufacture of Pulp and Paper," edited by J. N. Stephenson, has just come to hand.

The fourth volume of this work that appeared a year ago contained a description of the Fourdrinier paper machine and dealt also with the preliminary phases of paper making such as beating, engine sizing and coloring, besides treating of the preparation of papermaking materials other than wood pulp.

The preparation and treatment of wood pulp was covered by the third volume which appeared in 1923.

The present volume is, in consequence, really a continuation of the previous one. In the first section, the cylinder machine is described as well as machines of special design and also various attachments used for the production of special papers. The different methods of driving paper machines, such as the Marshall train, rope drives, the Ferguson drive, and the different sectional electric motor drives, with their controls, are covered in full detail. This section on paper machines is written by J. W. Brassington who described the Fourdrinier paper machine in the fourth volume.

The second section is divided into two parts, the first of which is an extremely well written treatise on handmade paper by Dard Hunter, well known for his "Old Paper Making and Its Watermarks," the entire work of which—authorship, paper, type and printing—is the product of his own hand.

The second part of the section covers tub sizing by R. O. Harper, under whose tutelage the editor, J. N. Stephenson, learned the papermaking art.

The third section deals exhaustively with the finishing operations of paper making and is written by W. D. Sommerville. The operations covered include cutting and rewinding, supercalendering, plating, pasting, sorting, counting, packing and loading paper.

Section 4 on coated papers is by Norman Clark and includes the layout of the coating plant, the testing and preparation of the coating materials, a description of the different coating processes, as well as the drying and finishing operations.

The fifth section is on paper testing and is largely abstracted from "Paper Testing Methods" of the Technical Association, and credit is given for it to the Paper Testing Committee. A valuable part of this section is a description of the microscope and methods of microscopical analysis of paper, and it includes also nine plates showing the standard fibers in their natural colors, which were prepared by Mrs. Muriel Merritt of the Bureau of Standards.

In the sixth and final section is given a chapter on pumps and pumping apparatus used in pulp and paper mill operation, written by E. F. Doty; one by H. E. Stafford on the care and maintenance of electrical equipment, followed by heat and ventilation written by J. O. Ross, with a final chapter on lubrication and water written by J. N. Stephenson and H. J. Skinner.

The publication of the fifth volume completes the set of books covering "The Manufacture of Pulp and Paper," which has been in preparation for the past five years under the able editorship of J. N. Stephenson. The work represents a distinct achievement in industrial training by an industry itself. The different chapters are written by men active in the industry and of established experience. The expense of preparation was defrayed through appropriations by the Canadian Pulp and Paper Association and by contributions from pulp and paper manufacturers and allied industries in the United States raised through the efforts of the Technical Association of the Pulp and Paper Industry. To prepare and publish such a work was a large undertaking; its successful accomplishment is unique in that it represents the co-operative effort of the pulp and paper industry of a whole continent. We heartily recommend this set of books for the libraries of paper manufacturers and students of paper making as an authoritative source of information of North American practice in pulp and paper making. In five volumes, McGraw-Hill Book Company, New York, publishers. $25 for the set or $5 per volume, sold separately.

George R. Ellis Leaving Niagara Alkali

Mr. George R. Ellis has tendered his resignation as manager of sales in the specialty department of the Niagara Alkali Co., Niagara Falls, N. Y., to take effect March 1.

Mr. Ellis has been connected with the Niagara Alkali Co. and its associate company, the Electro Bleaching Gas Co., for over twelve years, and was for a long period the Western representative for the latter company with headquarters at Chicago, and during that time was eminently successful in introducing liquid chlorine in the waterworks field when that commodity had stubborn resistance.

He has had wide experience and a host of friends among the waterworks officials the country over, and in addition during the last few years has devoted much time to the sale of chemical products and equipment to the paper and textile field.

The Pulp and Paper Trading Co.
21 East 40th Street New York City

DEALERS IN DOMESTIC CHEMICAL AND MECHANICAL PULPS AND PAPER

AGENTS FOR
J. & J. Rogers Company, Ausable Forks, N. Y.
E. B. Eddy Company, Ltd., Hull, Canada

Canadian Kraft Limited, Three Rivers, Canada
Dealers in Wayagamack Kraft Pulp

Howard Smith Paper Mills, Montreal, Quebec
EASTERN AGENTS of Sulphite Pulp. Made by
Port Huron Sulphite & Paper Co., Port Huron, Mich.

J. ANDERSEN & CO.
21 East 40th Street New York City

Importers of Chemical Pulps
BLEACHED AND UNBLEACHED

Agents for Kellner Partington Paper Pulp Co., Ltd.
Sarpsborg, Norway; Forshaga, and Edsvalla, Sweden

The B Co. Inc. QUALITY PULPS

HAFSLUND NORWAY — **"HAFSLUND BEAR"** Bleached Sulphite

F: HAGA — **"FORSHAGA"** Bleached Sulphite

KRAFT HURUM NORWAY SPECIAL — **"HURUM SPECIAL"** Extra Strong Kraft

KOOS BAC — **"BAMBLE"** Extra Strong Kraft

The Borregaard Company
200 Fifth Ave. Incorporated New York, N.Y.

The St. Regis Paper Company
and the
Hanna Paper Corporation

Daily Capacity, 425 Tons

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Butchers' Manila
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General Sales Office: 30 East 42nd Street, New York
620-621 McCormick Building, Chicago, Ill. 1117 Farmers Bank Building, Pittsburgh, Pa.

EXPORTS

Exports of paper from the United States in November showed a decline compared with the preceding month, according to statistics issued by the Department of Commerce. Total exports of paper of all kinds in November were valued at $1,999,917, against $2,359,486 in October last, and $1,926,642 in November, 1923. Paper exports from this country in the first eleven months of 1924 totaled in value $22,707,341, contrasted with $23,496,542 in the same period of 1923, showing a slight decrease.

Exports of newsprint paper in November amounted to 2,907,599 pounds, valued at $164,831, compared with 2,623,878 pounds of a value of $129,383 in November, 1923. Book paper, uncoated, exports in November were larger than in the same month of 1923, totaling 2,111,322 pounds of a value of $216,137, and 1,830,792 pounds of a value of 204,060, respectively.

Exports of writing paper, except papeteries, from the U. S. last November reached a total of 255,440 pounds, valued at $44,198, against shipments of 497,831 pounds of a value of $90,698 in the same month of 1923. Exports of kraft paper in November were 42,659 pounds, valued at $3,999, against 121,871 pounds of a value of $10,201 in November a year ago, while other wrapping paper exports totaled 1,780,523 pounds, valued at $126,584, compared with 2,031,070 pounds of a value of $166,654 in the same month of 1923.

The U. S. exported 4,126,757 pounds of paper and strawboard in November, valued at $164,164, contrasted with 2,964,030 pounds of a value of $146,999 in November, 1923. Shipments of 213,975 pounds of blotting paper, valued at $25,130, were made in November, against no exports of this class of paper in November, 1923. Exports of sheathing and building paper in November amounted to 934,243 pounds, valued at $49,597, contrasted with 437,170 pounds of a value of $19,789 in the same month of 1923.

IMPORTS

The most important development in connection with foreign wood pulp is a report through news channels just received in New York to the effect that the Paper Mills Association in Sweden has declared a lockout in the paper mills of that country, effective February 1, in an effort to settle the wage dispute which has been going on for some time. The national agreement between employers and workers in the Swedish papermaking industry expired recently, and negotiations toward a new agreement have been interrupted owing to the seeming impossibility of reconciling the workers' demands with the desire of the mill owners to bring wages within limits corresponding to actual market conditions, the report stated. Very little or no detail information has been received concerning the lockout and it is therefore unknown whether it is likely the labor trouble may spread to involve the wood pulp mills in Sweden. If it should the effect on the world pulp situation would be important, especially in the United States, because paper and board manufacturers in this country have purchased large supplies of pulp in Sweden for delivery this year and if anything should occur to postpone or prevent these deliveries there is no saying what might happen in the pulp market.

Pulp is arriving in the United States in heavy volume, receipts at New York and other Atlantic ports having been unusually large in recent weeks. Most of this supply is, of course, shipments against orders placed some time ago, at the same time consumers are buying off and on in a fairly large way, the market exhibiting moderate activity. The price tone is firm indeed. The markets abroad are strong, with quotations at primary sources tending to rise, and importers in New York consequently are holding to firm rates.

Imports of chemical wood pulp into the U. S. in November totaled 97,574 net tons of all grades, showing a decline compared with the several previous months, imports in October reaching a total of 120,991 tons and in September 118,379 tons. November receipts brought the total for the first eleven months of 1924 up to a total of 1,023,267 tons, giving a monthly average of 93,024 tons, compared with a monthly average of 80,181 tons jn the same period of 1923. Imports of mechanical pulp in November were 22,174 tons, against 27,290 tons in October, and making a total of 198,146 tons for the first eleven months of 1924, giving a monthly average of 18,013 tons, contrasted with 21,444 tons in the same time of 1923.

Kraft pulp of standard prime Swedish quality is quoted around 2.90 cents per pound ex dock New York or other American Atlantic ports, and some mill brands are quoted at 3 cents and even higher. Practically no Swedish kraft is available, it is said, below 2.85 cents on the dock here. Strong unbleached sulphite is firm in price at around 2.85 cents a pound ex dock New York, and easy bleaching sulphite is quoted from 2.90 cents upward. Bleached sulphite of No. 1 grade is selling from 2.75 cents up to 4.10 and 4.15 cents a pound ex dock, with 4.25 cents quoted in exceptional instances on certain brands. Scandinavian ground wood has stiffened in price to where importers generally ask a minimum of $37 a ton ex dock New York.

Receipts at the port of New York in January and current market quotations ex dock New York follow:

Bleached sulphite, No. 1	3.75- 4.25
Unbleached sulphite, strong, No. 1	2.70- 2.90
Unbleached sulphite, No. 2	2.50- 2.65
Easy bleaching sulphite	2.90- 3.15
Mitscherlich unbleached, genuine	2.85- 3.25
Mitscherlich unbleached, ordinary	2.60- 2.75
Kraft, standard Swedish	2.85- 3.00
Ground wood, per ton	37.00-38.00

Scandinavian Pulp Agency, 635 bls. from Gothenburg, 6,100 Skutskar, 625 Norrkoping and 500 Gefle; Price & Pierce, 1,675 bls. from Gothenburg, and 914 Kopmanholmin; E. M. Sergeant Co., 1,214 bls. from Gothenburg, 3,600 Hernosand and 1,500 Bremen; Pagel, Horton & Co., 4,200 bls. from Hornefors and 5,049 Obbola; Goldman, Sachs & Co., 3,000 bls. from Ohrviken; E. Naumberg & Co., 600 bls. from Sundsvall and 600 Bremen; Central Union Trust Co., 1,219 bls. from Kopmanholmin, 3,000 Sundsvall and 800 Hamburg; Tidewater Paper Mills Co., 24,091 bls. ground wood from Liverpool, N. S.; Old Master Paper and Pulp Co., 10 bls. from Trieste; Ira L. Beebe & Co., 3,877 bls. from Hamburg; Hartig Pulp Co., 1,375 bls. from Hamburg, 625 Bremen, 900 Hernosand and 2,000 Gefle; Nilsen, Lyon & Co., 600 bls. from Oslo; Equitable Trust Co., 2,500 bls. from Norrkoping; Irving Bank-Columbia Trust Co., 400 bls. from Hamburg; W. Hartmann & Co., 300 bls. from Hamburg; Bulkley, Dunton & Co., 2,500 bls. from Bremen and 6,050 Gefle; Lagerloef Trading Co., 2,491 bls. from Bremen; North German Lloyd, 120 bls. from Bremen; J. Andersen & Co., 675 bls. from Hamburg, 6,300 Hernosand, 112 Gothenburg and 400 Stoka; National City Bank, 2,858 bls. from Hamburg and 1,882 Kotka; International Acceptance Bank, 518 bls. from Rotterdam and 600 Gefle; Castle & Overton, 2,640 bls. from Hamburg; Johaneson, Wales & Sparre, 280 tons from Hernosand and 500 bls. Copenhagen; E. J. Keller Co., 247 bls. from Rotterdam and 398

KALAMAZOO VEGETABLE PARCHMENT CO.

MANUFACTURERS OF
PARCHMENT, WAXED (KVP) AND BOND PAPERS

KALAMAZOO, MICH.

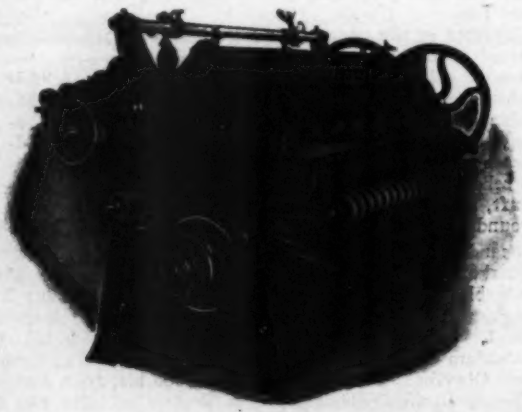
GENUINE VEGETABLE PARCHMENT
The best protection in the marketing of Dairy Products, Meats, etc.

WAXED PAPERS—Plain and Printed
Bread Wrappers—the "Stay Put" kind. Automatic wrapping and lining machine rolls.

SULPHITE BONDS AND LEDGERS
"K.V.P." (watermarked) Bond Glendale Bond —Flivver Bond. Made in 6 colors and white. K.V.P. Ledger—Buff and White.

KLOTHWHITE AND DRUG BOND
—for Druggist, Stationer and general Retailer.

GOOD HOUSEKEEPING PAPERS
Shelf and Lining—Rolls, 100 ft.—14, 20 and 28 inches wide.
Household Parchment—Rolls, 100 ft. long, 12 inches wide.
Heavy Waxed Paper—Rolls, 150 ft. long, 12 inches wide.

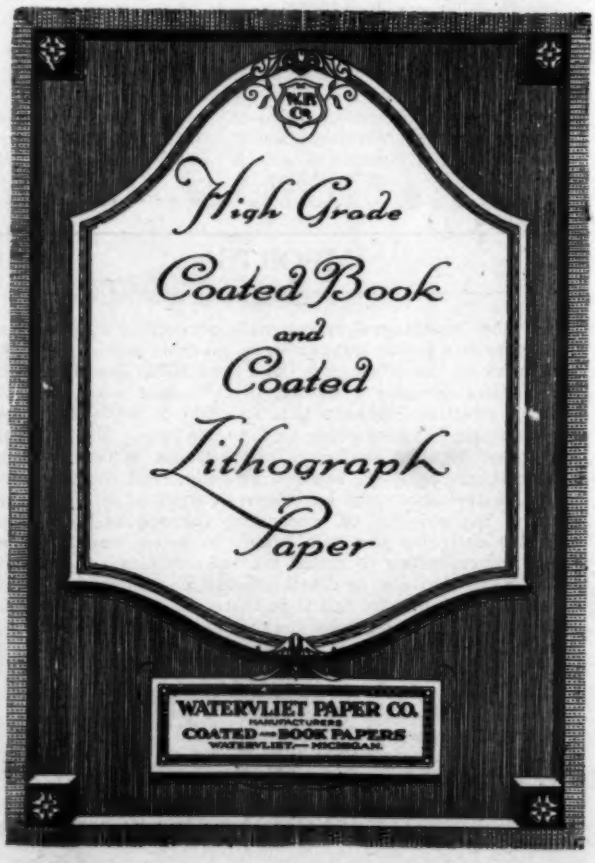


PAPER CUTTERS

Single, Duplex, and Diagonal

CUTTER KNIVES
PATENT TOP SLITTERS

Hamblet Machine Co.
LAWRENCE, MASS.



Hamburg; Kidder-Peabody Acceptance Corp., 250 bls. from Oslo; Order, 625 bls. from Gothenburg, 4,819 Vancouver, 7,125 Sundsvall, 2,415 Kotka, 5,249 Raume, 1,972 Trieste and 1,325 Bremen.

Paper Stock

Papermaking rags arrived in the United States through the port of New York in exceedingly large quantities during January. Probably never before has there been a greater number of shipments received at that port in a single month, and indications are the total imports for the month constituted a new high record. Imports of other papermaking material also were fairly large, some sizable shipments of old rope, scrap bagging and waste paper coming in. Imports of all kinds of papermaking stock through the port of New York in January, with names of consignees, were as follows:

Old Rope

Brown Bros. & Co., 77 coils from Gothenburg, 322 coils from Bristol, 102 bls. and 6 coils Liverpool, 381 coils and 8 bls. Hull, 155 coils and 177 bls. Rotterdam, 201 bls. Antwerp, 79 coils Hamburg, 106 coils and 22 bls. London, and 52 coils Copenhagen; M. Wolfer & Co., 74 bls. from Havana; Panama R. R. Co., 13 bls. from Panama; International Purchasing Co., 23 bls. from Havre, 24 bls. Hamburg, 2 coils Genoa and 21 coils Marseilles; A. H. Searle, 12 coils and 4 bls. from Havre; W. Schall & Co., 96 coils and 14 bls. from Hamburg and 40 bls. Leghorn; Ellerman's Wilson Line, 236 coils from London; Maurice O'Meara Co., 627 coils from Genoa; Castle & Overton, 108 bls. from Hamburg; American Exchange National Bank, 42 bls. from Leith and 248 coils Hull; International Acceptance Bank, 107 coils from Rotterdam; E. J. Keller Co., 46 bls. from Rotterdam and 64 bls. Bremen; National City Bank, 111 bls. from Leghorn; Mechanics & Metals National Bank, 64 bls. from Havre and 243 bls. Antwerp; G. M. Graves Co., 84 bls. from London; Order, 22 bls. from London and 50 coils London.

Old Bagging

Daniel M. Hicks, Inc., 43 bls. from Antwerp; Mechanics & Metals National Bank, 162 bls. from Rotterdam, 68 Manchester and 263 Havre; E. Butterworth & Co., 133 bls. from Rotterdam; Maurice O'Meara Co., 91 bls. from Rotterdam; E. J. Keller Co., 75 bls. from Copenhagen, 304 Rotterdam, 301 St. Nazaire and 546 Antwerp; Equitable Trust Co., 32 bls. from Manchester and 107 Havre; Guaranty Trust Co., 38 bls. from Manchester; American Exchange National Bank, 156 bls. from Leith; Coal & Iron National Bank, 57 bls. from Leith; G. M. Graves Co., 107 bls. from Rotterdam; Katzenstein & Keene, 128 bls. from London and 15 Glasgow; East River National Bank, 33 bls. from Genoa; British Bank of South America, 82 bls. from Liverpool; International Acceptance Bank, 30 bls. from Hamburg; H. S. Prince, 45 bls. from Liverpool; Castle & Overton, 55 bls. from Havre; Order, 52 bls. from Glasgow, 44 Rotterdam, 361 Manchester, 317 Hamburg, 53 Liverpool, 134 Genoa and 81 Bremen.

Rags

Castle & Overton, 37 bls. from Antwerp, 167 Rotterdam, 162 Dunkirk and 8 Belfast; Stone Bros. Co., 119 bls. from Antwerp, 103 Naples, 280 Barrow, 89 Rotterdam, 389 Havre, 344 Dunkirk, 26 Hamburg, 41 London, 170 Barcelona, 47 Liverpool, and 165 Marseilles; E. J. Keller Co., 791 bls. from Antwerp, 269 Barcelona, 2 Alexandria, 3,035 Rotterdam, 405 Bremen, 157 Trieste, 750 Havre, 145 Dunkirk, 603 Copenhagen, 1,129 Hamburg, 78 Stockholm, 100 Kobe, 254 Leghorn, 77 Marseilles, 457 St. Nazaire, 331 Bordeaux, 70 Naples, and 280 Genoa; G. M. Graves Co., 52 bls. from Antwerp and 420 Rotterdam; Katzenstein & Keene, 397 bls. from Barcelona and 203 Dunkirk; P. Berlowitz, 612 bls. from Antwerp, 412 Havre, 50 Rotterdam and 51 Dunkirk; Albion Trading Co., 13 bls. from Gothenburg, 72 Bordeaux and 56 Havre; S. Birkenstein & Sons, 170 bls. from Rotterdam, 125 Hamburg, 320 Leghorn and 24 Marseilles; Atterbury Bros., 272 bls. from St. Nazaire; Robert Blank, 327 bls. from Rotterdam; J. J. Patricof, 135 bls. from Rotterdam; American Wool Stock Co., 104 bls. from Rotterdam; Darmstadt, Scott & Courtney, 41 bls. from Rotterdam and 83 Havre; G. W. Millar & Co., 30

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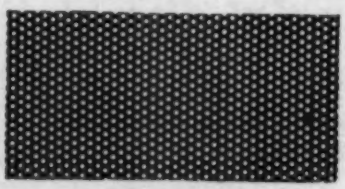

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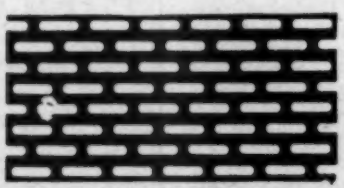
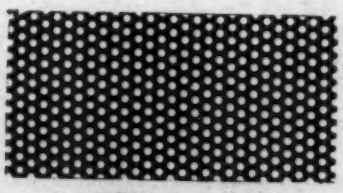


⅛ x ¾" Slots



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Miscellaneous Paper Stock

Katzenstein & Keene, 35 bls. from London; S. Birkenstein & Sons, 145 bls. from London; J. Cohen & Sons Co., 80 bls. from London; Amsinck, Sonne & Co., 143 bls. from London; Equitable Trust Co., 90 bls. from Glasgow and 429 Antwerp; State Bank, 72 bls. from Glasgow; Irving Bank-Columbia Trust Co., 166 bls. from Dundee; National City Bank, 777 bls. from Dundee and 52 Bremen; W. Schall & Co., 85 bls. from Dundee and 83 Hamburg; U. S. Mortgage & Trust Co., 27 bls. from Dundee; Anglo-South American Trust Co., 28 bls. from

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London; Baring Bros. & Co., 113 bls. from Glasgow; Brown Bros. & Co., 120 bls. from Glasgow; Whaling Waste Products Co., 153 bls. from Havre; Mechanics & Metals National Bank, 18 bls. from Glasgow; Order, 166 bls. from Liverpool, 306 Dundee, 100 Glasgow, 136 London and 157 Hamburg.

Paper

Some fair-sized shipments of newsprint and wrapping paper were imported through the port of New York in January; otherwise there was a lack of feature in the import trade of the United States in paper last month, judging from the arrivals at New York. Several large consignments of cigarette paper were received, and there were the usual quantities of filter, hanging, drawing and other papers imported. Importations of paper of all kinds through the port of New York during January follow, these data being taken from the manifests of steamers reaching that port during the month:

Printing

B. F. Drakenfeld & Co., 67 cs.; Perry, Ryer & Co., 250 cs.; H. Schutte & Co., 16 cs.; J. P. Heffernan Paper Co., 1,067 rolls, 381 bls. and 8 cs.; C. G. Keferstein, 19 cs. and 5 rolls; Hudson Trading Co., 281 rolls and 49 bls.; H. Reeve Angel & Co., 135 rolls; F. C. Strype, 34 cs.; Majestic Mills Paper Co., 104 bls.; Wilkinson Bros. & Co., 18 bls.; Drinhausen & Hollkott Paper Co., 853 rolls and 54 bls.; Perkins-Goodwin Co., 43 bls.; E. Naumberg & Co., 187 rolls; E. Dietzgen & Co., 25 cs.; P. C. Zuhlke, 75 cs.; Irving Bank-Columbia Trust Co., 335 rolls; W. Hartmann & Co., 125 rolls and 32 bls.; M. Gottesman & Co., 204 rolls; Fernstrom Paper Co., 61 bls.; Rohner, Gehrig & Co., 34 cs.; German Consolidated Newspaper Co., 101 rolls; Maurice O'Meara Co., 158 rolls and 316 bls.; G. W. Reed & Co., 11 cs.; P. Puttmann, 19 cs.; Steffen, Jones & Co., 2 cs.; North German Lloyd, 336 rolls; Oxford University Press, 10 cs.; Fourth & First National Bank, 296 rolls; New York & Hauseatic Corp., 64 rolls; Bankers Trust Co., 190 rolls; Storrs & Bement Co., 206 bls.; Seaman Paper Co., 60 rolls; Order, 4,739 rolls, 402 bls. and 60 cs.

Wrapping

Wilkinson Bros. & Co., 1,509 rolls and 159 bls.; J. P. Heffernan Paper Co., 283 bls.; M. M. Cohen, 583 rolls and 305 bls.; C. G. Vinans & Co., 795 rolls and 40 bls.; Borregaard Co., 592 rolls and 245 bls.; D. S. Walton & Co., 92 rolls; Thomas Barrett & Son, 77 bls.; Hyman & Schultz, 295 rolls; C. K. MacAlpine & Co., 271 rolls and 52 bls.; Blauvelt-Wiley Paper Mfg. Co., 34 bls.; International Forwarding Co., 13 cs.; C. Steiner, 14 cs.; National City Bank, 28 bls.; Republic Bag & Paper Co., 405 bls.; American Express Co., 20 rolls; F. C. Strype, 582 bls., 58 rolls and 7 cs.; Gilbert Paper Co., 87 bls. and 197 rolls; Arkell Safety Bag Co., 679 rolls; R. Wilson Paper Corp., 28 cs.; C. F. Vogelius, 4 bls.; Birn & Wachenheim, 5 cs.; W. Hartmann & Co., 53 bls.; Order, 1,213 bls.

Cigarette

American Tobacco Co., 2,550 cs.; R. J. Reynolds Tobacco Co., 2,450 cs.; DeManduit Paper Corp., 830 cs., Zorro Tobacco Co., 22 cs.; F. P. Gaskell & Co., 30 cs.; Southern Pacific Co., 3 cs.; P. J. Schweitzer, 180 cs.; Standard Products Corp., 158 cs.

Writing

J. C. Robold & Co., 3 cs.; J. P. Heffernan Paper Co., 21 cs.; Old Master Paper & Pulp Co., 30 cs.; Kidder-Peabody Acceptance Corp., 30 cs.; Coenca-Morrison Co., 6 cs.; J. W. Hampton Jr. & Co., 12 cs.; Guibont Freres & Co., 33 cs.; Meadows, Wye & Co., 3 cs.

Drawing

Keuffel & Esser Co., 172 cs.; Rohner, Gehrig & Co., 4 cs.

Filter

H. Reeve Angel & Co., 23 cs.; J. Manheimer, 48 bls.; Franco-American Import Corp., 10 bls.

Tissue

Wilkinson Bros. & Co., 19 cs.; Baldwin Universal Co., 3 cs.; Neidlich Process Co., 4 cs.; J. B. Mast & Co., 5 cs.; F. C. Strype, 11 cs.

Photo

Hensel, Bruckmann & Lorbacher, 3 cs.; Globe Shipping Co., 199 cs.; F. G. Prager & Co., 20 cs.; G. Gennert, 26 cs.; Gavaert

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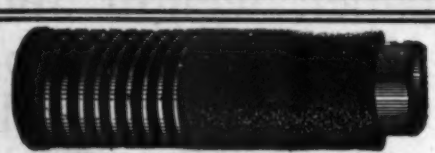

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Board

O. M. Baxter, Inc., 50 cs.; Hensel, Bruckmann & Lorbacher, 4 cs.; Schenkers, Inc., 10 bls.; F. C. Strype, 7 cs.; A. Vuyck, 1,035 rolls; American Express Co., 12cs.; Chase National Bank, 821 bls.; Old Master Paper & Pup Co., 50 bls.; R. Reimer, Inc., 17 cs.; First National Bank, 55 cs.; Maurice O'Meara Co., 2 bls.; Fibre Case & Novelty Co., 40 bls.; Happel & McAvoy, 4 cs.; Bank of the United States, 17 cs.; Baldwin Universal Co., 50 cs.; H. Brockelbank, 8 cs.

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Japan Paper Co., 24 pcs.; Whiting-Patterson Co., 65 cs.; Coenca-Morrison Co., 8 cs.; P. H. Petry & Co., 13 cs.; G. W. Sheldon & Co., 3 cs.; F. L. Kraemer & Co., 7 cs.; Bernard, Judae & Co., 4 cs. and 5 bls.; F. A. Chase, 36 rolls; F. C. Strype, 10 cs.; E. Dietzgen & Co., 10 cs.; A. Flinn & Co., 3 cs.; Gallagher & Ascher, 12 cs.; Dollar Steamship Line, 25 cs.; Rubberoid Co., 70 rolls; Birn & Wachenheim, 20 bls.; Bendix Paper Co., 7 cs.; H. Reeve Angel & Co., 8 cs.; C. A. Johnson & Co., 2 cs.; J. P. Heffernan Paper Co., 1,000 bls.; R. F. Downing & Co., 4 cs.; Whitefield Paper Works, 25 cs.; E. Fougera & Co., 80 cs.; International Forwarding Co., 10 cs.; J. A. Nibila & Co., 113 bls.

Foreign Trade Opportunities

Additional information regarding the following foreign trade opportunities issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce may be obtained from the Bureau in Washington, D. C., or its branch offices. It is requested that the number of the inquiry be given at all times.

No. 13215—Fiber board. Casablanca, Morocco. Agency desired.

No. 13233—Old newspapers. Hongkong, China. Purchase desired.

No. 13215—Newsprint and cheap wrapping paper. Casablanca, Morocco. Agency desired.

No. 13183—Paper, medium priced. Alexandria, Egypt. Agency desired.

No. 13235—Paper for manufacturing insect-proof sacks for holding fruit. Talcahuano, Chile. Purchase desired.

No. 13234—Printing and ledger paper in bulk. Valparaiso, Chile. Agency desired.

No. 13180—Wallboard. San Salvador, Central America. Purchase and agency desired.

No. 13356—Bags and wrappers for fruit. Leamington, Canada. Purchase desired.

No. 13319—Fiber, vulcanized, for making trunks and suitcases. Stuttgart, Germany. Purchase desired.

No. 13278—Paper, all kinds. Lima, Peru. Exclusive agency desired.

No. 13320—Paper, printing, writing and packing. Bombay, India. Agency desired.

Abitibi's Good Record

The last week of the old year established a new record in newsprint production at the Abitibi Power and Paper Co.'s mills at Iroquois Falls, Ont., where many records were broken in previous weeks during the year. In the matter of safety, there were no fatal accidents at the mill in 1924, and only two permanent disability cases. In 1923 there were four fatal accidents, and the improvement is welcomed by both management and men.

The Abitibi Co. is out to win the Safety Shield offered by the Ontario Pulp and Paper Makers' Safety Association during 1925. In 1921 the shield was won by the Dryden Paper Company, in 1922 by the Provincial Paper Mills, and in 1923 by the Hawkesbury mill of the Riordon Co.

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